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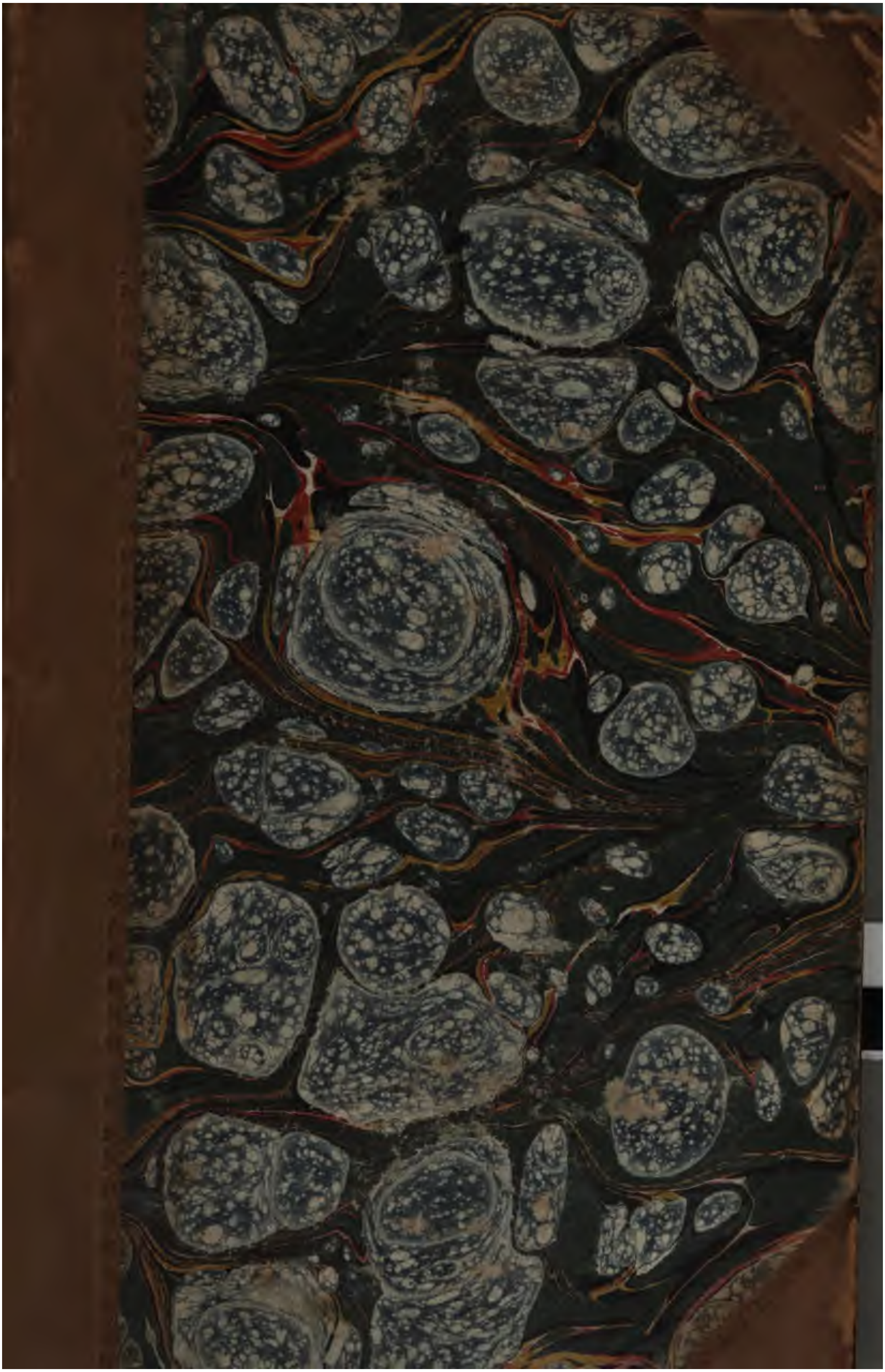

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1827

THE

FARMER'S GUIDE,

AND

AGRICULTURIST'S COMPANION;

BEING

A NEW, CLEAR, AND COMPREHENSIVE SYSTEM

OF

FARM BOOK-KEEPING;

WITH

FORMS OF A LEASE, SUBMISSION, DECREET-ARBITRAL,

BIBLIOTHECA · BODLEIANA ·

TO WHICH IS ADDED,

A VARIETY OF USEFUL OBSERVATIONS,

SELECTED FROM THE WORKS OF THE MOST CELEBRATED AGRICULTURISTS,

ON THE

MANAGEMENT OF SOILS, CROPS, AND LIVE-STOCK;

WITH A SUMMARY OF

THE DUTIES OF A LAND-STEWARD.

By ALEXANDER TAYLOR,

TEACHER OF ENGLISH AND ACCOUNTS, MUTHILL;

Editor of " The Economical Collection for Schools," &c.

He that by the Plough would thrive,
Himself must either hold or drive.—Franklin.

EDINBURGH;
PRINTED FOR THE AUTHOR,
AND SOLD BY
OLIVER & BOYD, TWEEDDALE-COURT; WILLIAM M'DONALD, AND
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AND GEO. B. WHITTAKER LONDON.

1827.

730

ENTERED IN STATIONERS'-HALL.

TO THE

HIGHLAND SOCIETY OF SCOTLAND,

WHOSE ACTIVE AND INDEFATIGABLE EXERTIONS

HAVE BEEN

UNREMITTINGLY DEVOTED

TO THE PROMOTION

OF

THEIR COUNTRY'S BEST INTERESTS,

THIS BOOK

IS INSCRIBED,

FROM MOTIVES OF THE MOST PROFOUND RESPECT,

BY THEIR MOST HUMBLE SERVANT,

THE AUTHOR.

PREFACE.

The Author would willingly have dispensed with what is termed a Preface, being aware that few readers ever think of even glancing at it; but, as writers in general seem to consider it essential to address their readers under that title, the Author of the following *System of Farm Book-keeping* cannot presume to deviate from established custom, and therefore begs leave to make the following brief remarks:—

At an early period any thing approaching towards a liberal education was considered as in no degree necessary for such individuals as were destined to become *Farmers* or *Cultivators* of the soil, and if they were qualified to peruse the Bible, and write a little, their education was considered sufficient. Under these unfavourable circumstances, Farm Accounts and Book-keeping were long almost entirely neglected.

These days of darkness, however, have now vanished from the effect of a more extended education and improvement in society, and at present agriculturists, in general, are not only as well educated, but as well qualified to keep their accounts, as any other class of society; but, nevertheless, their rural avocations render them averse to writing, and, with few exceptions, the art of Book-keeping is still too little attended to.

This defect, however, has at length fortunately come under the observation of that most patriotic body, *The Highland Society of Scotland*, and no doubt such a stimulus will thereby be given as will soon remedy the evil.

The advertisement which lately appeared in the newspapers from that Society, induced the Author to prepare and lay before the public the following System of Book-keeping, embracing the Transactions of a Farm for one Year, with the Forms of a Lease, a Submission, and a Decreet-arbitral; to which are added, a Bill-book, Rules for measuring Wood and Stone, Malt-Floors, Hay-stacks, and Dunghills, with a Synoptical View of the Imperial Weights and Measures, &c.

As a model of Farm Book-keeping it is hoped the present will be found simple, and well adapted either for a small or an extensive farm, and that the *tyro*, by a little application, will very soon be able to keep his books with ease and accuracy.

The young agriculturist and cattle-dealer, who have not the benefit of an extensive library, will also find some useful information in the *second part* of this work, as it embraces interesting and useful extracts from the writings of the most celebrated agriculturists, respecting the origin and progress of agriculture, and its present state of improvement, the best mode of culture of the various soils, grain, roots, and plants; a description of the most approved breeds of live-stock, the diseases to which they are liable, and the most approved modes of cure.

The Author does not pretend to great practical knowledge in the art of agriculture, and if any of his selections are considered ill-chosen, he craves public indulgence, as he has used his best endeavours, and will be happy if his humble efforts tend in the smallest degree to promote the object in view.

MUTHILL, 9th April, 1827.

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A

NEW SYSTEM

OF

FARM BOOK-KEEPING.

FORM OF A LEASE,

Chiefly taken from a Copy of one drawn up by ANDREW STEELE, *W. S., after discussing the Subject in the Edinburgh Agricultural Society, 27th of March,* 1809.

IT is contracted, agreed, and ended, between The Right Hon. L. G., heritable proprietor of the lands after-mentioned, on the one part, and Timothy Tillfair, as tenant, on the other part, and A. as cautioner and surety for the said tenant, to the effect after-specified: That is to say, the said L. G. has let, and in consideration of the rent and other prestations after-mentioned, in tack and assedation, lets the lands and farm of Meal-Mount, as after-specified, to the said T. T., and his heirs, whether of line or by will and settlement, but always without division, and also to the assignees and subtenants of the said T. T., under the conditions and restrictions after-mentioned. *First*, The said tenant shall not be allowed to assign or subset his lease till he has been at least —— years in possession of the same. *Secondly*, He shall not be allowed to assign or subset the said farm, in portions to be occupied by different persons, without the consent of the proprietor. *Thirdly*, The proprietor shall be preferred, if he desires to have the possession, to any assignee or subtenant, on equal terms, to be adjusted by mutual arbiters, with power to appoint an oversman, All and Whole the lands of Meal-Mount, lying within the parish of ————, and shire of ————————, and that for the space of —— years and crops, from and after the 1st of November, 1825, which is hereby declared to be the term of the said Timothy Tillfair's entry to the said farm, and from thenceforth to be peaceably possessed by him and his foresaids during the foresaid space; but declaring, that the proprietor shall, agreeably to the laws and practice of Scotland, have full power to search for and work all mines and minerals in the said lands, and to make all necessary roads, and occupy ground for other necessary purposes thereanent, the proprietor always paying to the tenant surface-damage, which in no case shall be less than double the rent of the ground so occupied; and otherwise the same shall be ascertained by arbiters mutually chosen, or their oversman: and declaring also, that the proprietor shall have power to hunt or fish on the said farm, not only himself, but to grant leave to others, they being liable to damages if they commit any, for which the proprietor shall be obliged to give redress: And Further declaring, that if subdivison-fences, or other fences, shall be mutually agreed on either now or during the period of this lease, the tenant shall be obliged to pay, in addition to his rent, and along therewith, at the rate of six per cent. per annum on the expense thereof, if disbursed by the landlord; or if disbursed by the tenant, he shall receive at the end of this lease reimbursement to the full extent and value of the said fences, to be ascertained by arbiters mutually chosen: Further declaring, that the proprietor shall have liberty to plant and enclose such portions of the said farm as he may think proper, not exceeding —— acres; the manner of enclosing, as well as the deduction for the rent of the ground so taken off, being always previously determined by mutual arbiters. The fences on the said farm to be kept in good repair at the joint expense of proprietor and tenant; the tenant to cast, cleanse, and scour effectually all ponds, pools, trenches, water-conductors, drains, and ditches, at his own expense. Moreover, it is hereby declared, that if the tenant shall become bankrupt, or shall execute any voluntary trust-conveyance of his property for the behoof of his creditors, or be otherwise truly unable to perform the obligations on his part contained in this lease, then, and in any of these cases, this lease shall, at the option of the proprietor, be null and void, unless the tenant shall, within sixty days after he is requested by the landlord, execute an assignation or subtack of the nature before-described, or renounce the possession to the proprietor, for such value as shall be ascertained by mutual arbiters: And further, it is hereby declared, that, at the separation of the last crop from the ground before the end of this lease, the proprietor, or incoming tenant, shall have power to enter upon and plough the ground that has been in tillage that year, and may then, or sooner, if they please, enter upon the fallow after-mentioned; which tack the said L. G. binds and obliges himself, his heirs, and successors, to warrant to the said T. T., and his foresaids, at all hands, and against all deadly, as law will; and for that purpose, in case of a transference of the property of the said lands, to bar the purchaser from doing any deed inconsistent with the present lease: For which causes, and on the other part, the said T. T. binds and obliges himself, his heirs, executors, and successors whomsoever, to pay to the said L. G., his heirs or assignees, the sum of L.200 Sterling of yearly rent for the said farm, consisting of 100 Scots acres, the one-half of the rent to be paid at the term of Whitsunday ——, and the other half at Martinmas thereafter, for crop and year ——, and so furth half-yearly and termly during the currency of this lease, with a fifth part more of each term's rent of liquidate expenses in case of failure, and the legal interest of each term's rent from and after the respective terms of payment during the not-payment of the same: And further, the said T. T. binds and obliges himself, and his foresaids, to labour, manure, and crop the lands hereby let, in a proper and regular manner; and without prejudice to the generality of this clause, the succession of crops during the currency of this lease must succeed each other as follows, viz. 1*st*, Green crop or summer-fallow; 2*d*, Barley or wheat; 3*d*, Hay; 4*th*, Pasture; 5*th*, Corn. And during no period of the said lease shall the tenant be allowed to dispose of any part of the produce of the farm, except butter, cheese, poultry, eggs, meal, potatoes, hay, cattle, and grain thrashed out; the straw of the last crop excepted, which the tenant may dispose of on foot, with the corn thereon, or in any other way which he shall think proper; and he shall receive value for the working of any summer-fallow, and for the clover and rye-grass seeds sown in the last crop: And also for what dung may be on the farm at his removal, but not for such as has been lying on the ground for a longer period than from Whitsunday previous to his removal: And further, the said T. T. binds and obliges himself, and his foresaids, not to deteriorate or run out the lands hereby set, but to restore them at the expiration of this lease in good heart and condition; and in respect that the landlord has put all the houses on the farm in sufficient tenantable repair, and they being accepted as such by the tenant, the said tenant obliges himself and his foresaids to uphold and leave the same in like condition, ordinary tear and wear excepted. The said tenant also binds himself and his foresaids to flit and remove from the said possession at the expiration of this tack, without any warning or process of removing (unless that another lease be granted to him prior to that time); and the said A. as cautioner for the said T. T., the tenant, and his foresaids, binds himself, his heirs and successors, that the said tenant shall stock the said farm fully and properly; and also that he shall sow the same the first year of this lease, and that he shall pay his rents in the proportions and at the terms above-specified, with interest and penalty in case of failure; all as above-expressed. And, *lastly*, Both parties bind and oblige themselves, and their foresaids, to implement their respective parts of the premises, *hinc inde*, under the penalty of L.——— Sterling, to be paid by the party failing to the party observing or willing to observe the same, over and above performance. And in all cases mentioned in this lease to be decided by mutual arbiters, it is hereby declared, that if either party shall decline to appoint an arbiter or arbiters within ten days after being required in writing by the other party so to do, the sheriff, or other judge ordinary of the bounds, shall, upon application of either party, have power to appoint persons of skill to decide, and whose decision shall be final. And the parties consent to the registration hereof in the books of Council and Session, or other competent, therein to remain for preservation; and that letters of horning, on six days' charge, and all execution needful, may pass upon a decreet to be interponed hereto, in form as effeirs; and thereto they constitute ——————————— their procurators, &c. In witness whereof these presents, consisting of this and the — preceding pages, written on stamped paper by ——— ————————, are (with duplicate hereof) *subscribed* by both parties, At ————————, the ——— day of ————————, in presence of these witnesses:—

A., *witness*. L. G.
B., *witness*. T. T.
A*

---

* There ought to be two copies of the lease, one kept by the landlord, and one by the tenant. By the law of Scotland, deeds, and all writings of importance, must be subscribed before two witnssees; they must be of the male sex, above 14 years of age, who ought to know the parties, and see them subscribe, or hear them acknowledge their subscriptions; and in the last case the witnesses are required, in presence of the parties, to add their subscriptions as witnesses; and initial subscription in the case of witnesses is inadmissible; they subscribe the last page of the deed only, on the left-hand side of the page, adding *witness* to their names.

FORM OF A SUBMISSION.

A Submission is the same thing in Scotland that an arbitration-bond is in England, and may run thus:—

We, Timothy Tillfair, farmer at ———, and Adam Auld, farmer of Meal-Mount, do hereby refer and submit to Matthew Meanwell and Edward Aimright, arbiters mutually chosen by us, and, in case of their disagreeing in opinion, with power to appoint an oversman, what shall be given by me, the said T. T. to me, the said Adam Auld (outgoing tenant from the said farm of Meal-Mount), upon consideration of the quantity of dung lying in the court of said farm, as also the

Quantity of hay in one stack,
The value of oats and straw in two stacks,
The value of barley and straw in two do.,
The value of beans and straw in one do.,
The value of pease and straw in one do.,
The value of grass-seeds sown in field No 3.,

And we bind and oblige ourselves, and our heirs and successors, to abide by their decreet-arbitral, interim or final, to be thereanent pronounced on or before the —— day of ——— next. And we consent to the registration hereof, and of their determination, in the books of Council and Session, &c. (*as on Page 12th, in Form of Lease*).

A DECREET-ARBITRAL.

A Decreet-arbitral is in Scotland what an award or umpirage is in England, and may run thus:—

We, Matthew Meanwell and Edward Aimright, judges, arbitrators under-written, with the special advice and consent of Peter Pindar, oversman, after-mentioned: For as much as Timothy Tillfair on the one part, and Adam Auld on the other part, having submitted themselves to us, and, in case of variance betwixt us, with power to name an oversman, concerning the quantity of and value to be given for the various articles which are mentioned at full length in the foregoing submission, bearing date the — day of ——— We, the said judges-arbitrators, having accepted the said matter, and being herewith well and ripely advised, and, for our better help and supply therein, having taken the advice and assistance of the said Peter Pindar, oversman named by us,—After due deliberation, having God and a good conscience before our eyes, we all in one voice, by these presents, decern, ordain, and settle in manner following:—That is to say—

The hay-stack contains 1500 stones at 9d.	L.56	5	0
The two stacks of oats contain 22 bolls, or 11 bolls each, corn and straw, at 25s. per boll,	27	10	0
The one stack of beans to contain 8 bolls, at 21s. per boll, - - - -	8	8	0
The one stack of pease to contain 5 bolls, at 18s. per boll, - - - -	4	10	0
The two stacks of barley to contain 20 bolls, at 30s. per boll, - - -	30	0	0
The dung in the court-yard to be 540 loads, at 4s. per load, - - -	108	0	0
The grass-seeds sown in field No 3, containing 20 acres, to be paid for at the rate of 12s. 6d. per acre, - - -	12	10	0

That the value of these sundry articles, as above-mentioned, amounting in all to the sum of L.247, 3s. Sterling, shall be paid in manner following (that is to say), one-half on the 1st of July and the other half on the 1st of October, 1826. And this is our decreet and sentence, which, to all and sundry whom it concerns, we manifest and make known by these presents, and consent that the same, with the foregoing submission, be insert and registrate, &c. &c.*

Though the foregoing lease, submission, and decreet form part of the ground-work on which the following system is to be raised, yet I consider it necessary to lay down a few particulars, and then give a brief outline of the principles of book-keeping in general. And, first, it may not be improper to state, that the supposed Timothy Tillfair has engaged Thomas Thrift and Andrew Fairservice as ploughmen,

---

* Leases or tacks of lands, or heritable subjects, must be written on stamped paper, the price regulated by the amount of the yearly rent thus. If the rent does not amount to L.20,......................................Stamp, 20s.
If to L.20, and not to L.100,.........................30s.
L.100, and not to L.200,.........................40s.
L.200, and not to L.400,.........................60s.
and so on progressively.—If there is a grassum paid, and also a yearly rent of L.26, or upwards, both the *ad-valorem* duties for a grassum and for a rent must be included in determining the value of the stamp.

Submission, award, or decreet-arbitral, to be written on a stamp, value, 35s.

If the deed exceeds 2159 words, every 1080 words after require another stamp, though of less value.

Thomas Thrift to have, for yearly fee, the sum of L.15, 15s. Andrew Fairservice to have the sum of L.18, 18s. for yearly fee; and he is to sow the seeds, build the stacks, keep the farm-store deposit account and the book of operations (if needful); each of them to have two pecks of oatmeal per week, one Scotch pint of sweet milk per day, and 1s. 6d. each for salt during the year. The one-half of their fee to be paid at Whitsunday, 1826.

BOOK-KEEPING.

Book-keeping is the art of arranging the transactions of persons in any line of business, so as to exhibit a clear and concise state of their affairs, which may be done by two ways, founded on distinct principles, viz., single and double entry. In single entry each sum or amount is entered only once in the ledger. In double entry each sum or amount is entered *twice* in the ledger, viz. on the Dr. side of one account, and on the Cr. side of some other account or accounts. In teaching mercantile book-keeping at schools, it has long been the practice to use the following books (beside the subsidiary ones), viz. a day or waste book, a journal and ledger. However, I am convinced, from the experience of seventeen years teaching, that it is not only useless but even hurtful to the exercise of the intellect to use both a day-book and a journal, the journal being a mere repetition of the day-book, having the Dr. and Cr. expressed at the beginning of each transaction. In the following system I have given a specimen of a day-book and journal on the first two pages, after which I discontinue the form of the day-book, and write the transactions as they take place in the form of a journal.

As the following work differs both in matter and manner from all that have preceded it, I shall here name the books of which the whole is composed; the first of these to be termed a journal, the second an operation-book, and the third a ledger. The particular use of each of these will be explained as they come in order. And, first, of the day-book or journal, which is to be opened with an inventory of the cash in hand, all the effects of and debts due to T. T. when beginning farming; at same time a full statement of all the debts due by T. T.; after which every transaction either of purchase or sale must be faithfully recorded, with the date on which it takes place.

Having made these general observations, I shall now state a few particular rules by which the farmer is to be guided in writing his journal; and, first, of

ACCOUNTS OF PERSONS.

The person to whom any thing is delivered on credit is Dr., and the person from whom any thing is received on trust is Cr.

ACCOUNTS OF PROPERTY.

Every article bought or received is Dr.
Every article sold or disposed of is Cr.

PURCHASING AND SELLING GOODS.

Buying.—If for cash, enter the article bought Dr. to Cash. If on credit, enter the article Dr. to the Seller.

Selling.—If for cash, enter cash Dr. to the article sold. If on credit, enter the buyer Dr. to the article sold. State, in all these cases, the name, quantity, and value.

In Barter—A thing received is Dr. to the thing given for it.

BILL TRANSACTIONS.

Receiving bills,	Enter	Bills receivable Dr. to A. B.
Accepting bills,		A. B. Dr. to bills payable.
Indorsing bills,		A. B. Dr. to bills receivable.

CASH TRANSACTIONS.

Receiving personal accounts,—enter cash Dr. to A. B. the payer. Receiving money on account of property,—enter cash Dr. to that property for which the money is received, such as corn, hay, cheese, &c.

Paying money on account of property,—enter that property for which the money is paid Dr. to cash.

DAY-BOOK OR JOURNAL.

(1)

INVENTORY of Ready Money, Goods, and Debts belonging to TIMOTHY TILLFAIR, Farmer at Meal-Mount, taken Nov. 1, 1825.

				£	s.	d.
Cash in Hand, - - -				500	10	0
WORKING STOCK *as under.*						
4 Draught Horses, one with another, L.25, - -	L.100	0	0			
1 Saddle, - -	3	5	0			
4 Carts, at L.11 each, -	44	0	0			
2 Iron Ploughs, - -	10	0	0			
Harrows and Roller, -	5	0	0			
Cart and Plough Harness for 4 Horses, - -	16	0	0			
A Four-horse Thrashing-mill and Fanners, - -	59	10	0			
50 Sacks at 2s. 6d. - - -	6	5	0			
Other Implements, Grapes, &c.	4	0	0			
	L.248	0	0	248	0	0
DAIRY and FEEDING STOCK, *viz.*						
1 Cow, - -	L.8	0	0			
1 Hog, - -	0	10	0			
	L 1	10	0	8	10	0
Household Furniture, value - -				123	0	0
David Dingwell owes me per Account, - -	L.50	0	0			
Paul Playfair owes me per do.	70	0	0			
				120	0	0
I owe as under.				1000	0	0
To James Just one Account of	L.10	10	0			
To Samuel Seekall per do. -	5	5	0			
To Henry Haveall per do. -	5	5	0			
	L.21	0	0	21		

				Fo.	£	s.	d.
SUNDRIES *Drs to Stock as under.*							
Cash in Hand for - -				2/1	500	10	0
WORKING STOCK.							
For 4 Draught Horses,	L.100	0	0	3/1			
1 Saddle, - -	3	5	0				
4 Carts, - -	44	0	0				
2 Iron Ploughs, -	10	0	0				
Cart and Plough Harness,	16	0	0				
Thrashing-mill and Fanners, - -	59	0	0				
50 Sacks, - -	6	5	0				
Sundry small Implements,	4	0	0				
					248	0	0
DAIRY AND FEEDING STOCK.							
For 1 Cow, - -	L.8	0	0	4/1			
1 Hog, - -	0	10	0				
					8	10	0
HOUSEHOLD FURNITURE *for*				5/1	123	0	0
David Dingwell, per Account,	L.50	0	0	5/1			
Paul Playfair, per do.	70	0	0	5/1			
					120	0	0
					1000	0	0
STOCK *Dr. to Sundries as under.*							
To James Just, per Account,	L.10	10	0	1/6			
Samuel Seekall, per do.	5	5	0	c			
Henry Haveall, per do.	5	5	0	1/6			
					21	0	0

				Fo.	£	s.	d.
——**Meal-Mount**, Nov. 1, 1825.——							
Sundries *Drs to Adam Auld.*							
Farm-store Deposit-Account,	L.126	13	0	7/8			
Manure Deposit do.	108	0	0	8/8			
Field No3, (*see Decreet-arbitral,*)	12	10	0	11/8	247	3	0
—— 2. ——							
Sundries *Drs to Cash.*							
Household Deposit-Account for 20 Bolls of Oatmeal, at L.1, - -	L.20	0	0	14/2			
—— 6 St. of Barley, at 2s. 6d.	0	15	0				
—— 1 Do. of Butter, at 18s.	0	18	0				
—— 2 Do. of Cheese, at 6s.	0	12	0				
	L.22	5	0				
Farm-store Deposit-Account for 20 Bolls of Horse-corn, at 18s. - -	18	0	0				
				7/2	40	5	0
—— 3. ——							
Perth Bank *Dr to Cash lodged per Receipt.*				15/2			
Interest at L.2½ per Cent. - -					250	0	0
—— 15. ——							
Samuel Seekall *Dr to Cash paid him in full,*				6/2	5	5	0
—— 29. ——							
Cash *Dr to David Dingwell.*							
Received in Part of his Account, -				2/5	25	10	0

(3)

	Fo.	£	s.	d.
Dec. 15, 1825.				
Henry Haveall *Dr to Cash paid him in full,*	6/2	5	5	0
31.				
Farm-store Deposit-Account *Dr to Cash.*	7/2			
Paid 10 Bolls of Horse-corn, at L.1,		10	0	0
April 8, 1826.				
No 1, *Dr to Cash.*	9/2			
Paid 40 Bolls of Seed-potatoes, at 5s. per Boll, - - - -		10	0	0
21.				
Cash *Dr to David Dingwell received in full,*	2/5	24	10	0
May 1, 1826.				
Dairy-stock *Dr to Cash.*	4/2			
Paid 12 Milch-cows, - -		108	0	0
3.				
Cash *Dr to Paul Playfair, received in full,*	2/5	70	0	0
4.				
Manure Deposit-Account *Dr to Cash.*	8/2			
Paid 200 Loads of Dung, at 4s. per Load,		40	0	0
10.				
Farm-store Deposit *Dr to Cash.*	7/2			
Paid 20 Bolls of Horse-corn, at 19s. per Boll,		19	0	0

				Fo.	£	s.	d.
May 15, 1826.							
Sundries *Drs to Cash.*							
Working Stock for ½ Year's Wages of 2 Men and 1 Maid-Servant,				5/2	18	16	6
No 1. for ½ Year's Rent of 20 Acres, -				9/2	20	0	0
No 2. for ½ Year's Rent of 20 Acres, -				10/2	20	0	0
No 3. for ½ Year's Rent of 20 Acres, -				11/2	20	0	0
No 4. for ½ Year's Rent of 20 Acres, -				12/2	20	0	0
No 5. for ½ Year's Rent of 20 Acres, -				13/2	20	0	0
					118	16	6
17.							
Sundries *Drs to Cash.*							
No 1. For Turnip Seed, at 9d. per lb., 15 lb., -	L.0	11	3	9/2			
No 4. For Clover Seed, at 9d. per lb, 160 lb. Red,	6	0	0	12/2			
—— For ditto, at 9d. per lb., 40 lb., White, -	1	10	0				
—— For Rye-Grass, at 4s. per Bushel, 25 Bushels, -	5	0	0				
	L.13	1	3		13	1	3
19.							
Cash *Dr to the Perth Banking Co.*				2/15			
Drawn on them, - -					150	0	0
20.							
Household Deposit *Dr to Cash.*				14/2			
Paid 20 Bolls of Oatmeal, at 17s., -					17	0	0

(5)

	Fo.	£	s.	d.
MAY 22, 1826.				
DAIRY and FEEDING STOCK *Dr to Cash.*	4/2			
For 5 Two-year Olds, at L.6 each, L.30 0 0				
For 6 Calves, at L.1, 10s. each, 9 0 0				
L.39 0 0		39	0	0
31.				
FEEDING or DAIRY STOCK *Dr to Cash.*	4/2			
Paid for 4 Hogs, - -		2	0	0
JUNE 12, 1826.				
MANURE-DEPOSIT *Dr to Sundries.*				
To the Dairy Stock for 24 Loads of their Dung, at 4s., - L.4 16 0				
To Cash paid 16 Bolls of Lime, at 2s. 6d., - - 2 0 0				
L.6 16 0		6	16	0
25.				
CASH *Dr to No 3.*	2/11			
Received for 2000 Stones of Hay, at 8d. per Stone, - - -		66	13	4

	Fo.	£	s.	d.
JULY 1, 1826.				
ADAM AULD *Dr to Cash.*	6/2			
Paid ½ of his Account (*See the Decreet Arbitral*), - -		123	11	6
3.				
CASH *Dr to the Perth Banking Co.*	2/15			
Drawn on them, - -		103	13	7
29.				
MANURE-DEPOSIT *Dr to Sundries.*				
To the Dairy-Stock for 20 Loads of Dung, - - L.4 0 0				
To Cash paid 86 Bolls of Lime, 2 0 0				
L.6 0 0		6	0	0
AUGUST 2, 1826.				
MANURE-DEPOSIT *Dr to Cash.*	8/2			
Paid 16 Bolls of Lime, - -		2	0	0
13.				
MANURE-DEPOSIT *Dr to Cash.*	8/2			
Paid 16 Bolls of Lime, - -		2	0	0

	Fo.	£	s.	d.
AUGUST 16, 1826.				
FARM-STORE DEPOSIT *Dr to Cash.*	7/2			
Paid 16 Bolls of Horse Corn, at L.1 per Boll, - - -		16	0	0
SEPT. 1, 1826.				
No 1. *Dr to Cash.*	4/2			
Paid for 5 Bolls of Wheat-Seed, at 30s.,		7	10	0
24.				
MANURE-DEPOSIT *Dr to Cash.*	8/2			
Paid 16 Bolls of Lime, - -		2	0	0
25.				
CASH *Dr to the Dairy and Feeding Stock.*	2/4			
Received for 66 Stone of Butter, at L.1 per Stone, - L.66 0 0 Received for 135 St. of Cheese, at 6s. per Stone, - 40 10 0		106	10	0
30.				
CASH *Dr to the Dairy and Feeding Stock.*	2/4			
Received for the Farrow Cow, fed, - - L.10 0 0 Received for 4 Swine, - 6 0 0		16	0	0

		Fo.	£	s.	d.
October 6, 1826.					
Cash *Dr to No* 2.		8/10			
Received for 80 Bolls of Corn, at L.1, 1s. per Boll, - - -			84	0	0
7.					
No 2. *Dr to Cash.*		10/2			
Paid Reaping of 20 Acres, at 10s. per Acre,			10	0	0
26.					
Cash *Dr to Sundries.*					
To No 4. Received for 80 Bolls of Barley, at 35s. per Boll, - -			140	0	0
To No 3. Received for One Night of a Drove, - - -			1	10	0
27.					
Sundries *Drs to Cash.*					
No 1. Paid for Cutting of Beans,	L.1 0 0				
No 4. Paid for Reaping Barley,	10 0 0		11	0	0
31.					
Sundries *Drs to Cash.*					
Working Stock, paid Wages and Salt, - L.17 9 6					
Do., paid the Smith's Account, - 6 1 6					
	L.23 11 0				
Dairy and Feeding Stock, for Dairy-maid's Wages, -	3 0 0				
James Just, paid him in full,	10 10 0				
Adam Auld, ditto,	123 11 6				
No 1. Paid Rent, -	20 0 0				
2. Ditto, -	20 0 0				
3. Ditto, - -	20 0 0				
4. Ditto, -	20 0 0				
5. Ditto, - -	20 0 0		260	12	6

NOTE.—As the Transactions of the Year are now supposed to have come to a close, the Farmer or Owner of the Books, before proceeding to take a General Balance, is first to ascertain the quantity of Milk, Meal, Corn, Hay, Litter, &c., which has been consumed by his Working Stock. This may be known either by calculating from the regular Daily or Weekly Allowance, or by weighing and measuring what remains in the Farm-store and Household Deposit-accounts. Articles, such as Tares, Turnips, Cut Grass, &c., which do not come under the Rules of Weight and Measure, and which had never been entered in any of these Accounts, must now be valued by the practical knowledge of the Farmer, and the Working Stock or Dairy Stock made Drs to the respective Crops or Fields from which such Produce had been taken; which Crops or Fields will receive Credit for their respective Quantities and Value. These Disbursements could be posted or transferred to their respective Accounts in the Ledger without going through the form of a Journal, as may be seen by the Transfers made at the 1st of July; but, for sake of variety and perspicuity, I shall give the following a Journal Form, from which they shall be transferred into the Ledger.

The next thing to be done is to select from the Operation-Book the number of Yokings performed (in course of the year) by the Working Stock on Account of the Family, or in making Compost, mending Roads, repairing Office-houses, &c., for which Work no particular Field or Crop can with propriety be made answerable. Abstracts of these being made, as stated at the end of this Journal, the Working Stock will then receive Credit for the whole Amount; and the Accounts with which the Abstracts are judged to be connected will be made Drs for their respective sums. This being finished, Abstracts are next to be made from the Petty Cash-Book, of the small incidental Charges incurred on Account of the Working Stock, Dairy Stock, or any Field, or on Account of the Household Expense; for the Amount of which Charges the Cash-Account will receive Credit, and each of these Accounts will be debited for its respective sum. The first thing to be done in taking a General Balance is to rule two sheets with Money-Columns for Dr and Cr, one of which entitle *Balance* and the other *Profit and Loss*. As the nature of these and other Accounts is explained where they stand in the Ledger, I shall now proceed to finish the Journal, and to make out the various Abstracts agreeably to the explanation above given.

							Fo.	£	s.	d.
OCTOBER 31.										
WORKING STOCK *Dr to Sundries.*										
To the Dairy-Stock for 730 Pints of Milk, at 2d. per Pint, - - -				£6	1	8				
To the Household Deposit for 13 Bolls of Meal, at 18s. 6d., - - - -				12	0	6				
To the Farm-Store Deposit for 15 Bolls, 1 Firlot, 2 Pecks of Corn, at 19s. 8d., - -				15	2	2½				
To the Farm-Store Deposit for 492 St. of Hay, at 9d.,				18	9	0				
To No 1. for ½ Acre of Tares, valued at £4, 10s., -				4	10	0				
To No 3. for 10 Acres of 2d Crop of Clover, at 10s.,				5	0	0				
To Cash, per the Yearly Abstract of Small Charges,				1	9	10				
								62	13	2½
DAIRY and FEEDING STOCK *Dr to No* 5.							4/13			
For Pasture of 13 Cows, at £3, - -				£39	0	0				
For Pasture of 5 Two-Year Olds, at £1, -				5	0	0				
For Pasture of 6 Calves, at 10s., - -				3	0	0				
								47	0	0
SUNDRIES *Drs to the Working Stock.*										
House Expenses for 44 Yokings, per the Yearly Abstract, - - -				£11	4	0				
Manure-Deposit for 85 Yokings, per the Yearly Abstract, - - -				21	9	0				
Profit and Loss for 12 Yokings, per the Yearly Abstract, - - -				3	0	0				
								35	13	0
SUNDRIES *Drs to Cash.*										
No 1. per the Yearly Abstract, - -				£2	0	2				
No 2. per the Yearly Abstract, - -				0	8	0				
No 3. per the Yearly Abstract, - -				7	11	4				
No 4. per the Yearly Abstract, - -				0	5	0				
No 5. per the Yearly Abstract, - -				0	2	0				
House Expenses, per the Yearly Abstract, -				37	4	4				
								47	10	10
HOUSE EXPENSES *Dr to Sundries.*										
To the Household Deposit for 13 Bolls of Meal, at 18s. 6d., - - - - - -				£12	0	6				
To the Household Deposit for 6 Stone of Barley, at 2s. 6d., - - - - -				0	15	0				
To the Household Deposit for 1 Stone of Butter, at 18s., - - - -				0	18	0				
To the Household Deposit for 2 St. of Cheese, at 6s.,				0	12	0				
				£14	5	6				
To the Dairy-Stock for 3 St. 5 lb. of Butter, at £1, - - -	£3	6	3							
To the Dairy-Stock for 3 St. 8 lb. of Cheese, at 6s., - - -	1	1	0							
To the Dairy-Stock for 365 Pints of Milk,	1	10	5							
				£5	17	8				
								20	3	2
DAIRY and FEEDING STOCK *Dr to No* 3,							4/9			
For 10 Acres of Second Crop, at 10s., - -								5	0	0

(11)

ABSTRACT of the Labour performed by the Working Stock on Account of the Family, for which House Expenses will be made Dr and Working Stock Cr.

			Yok.	£	s.	d.
Dec.	31.	To the Working Stock, per the O. B., driving Coals,	8	2	0	0
June	30.	To the Working Stock, per the O. B., casting and driving Peats, - - -	8, &c.	2	4	0
July	31.	To the Working Stock, per the O. B., this Month,	12	3	0	0
Aug.	31.	To the Working Stock, per the O. B., this Month,	8	2	0	0
Sept.	30.	To the Working Stock, per the O. B., this Month,	8	2	0	0
			44	11	4	0

ABSTRACT of the Labour performed by the Working Stock in making Compost, for which make the Manure-Deposit Dr to the Working Stock for the Value of their Labour.

			Yok.	£	s.	d.
June	30.	To the Working Stock, per the O. B. -	16	4	0	0
July	31.	To the Working Stock, per the O. B. -	35	8	15	0
Aug.	31.	To the Working Stock, per the O. B. -	22, &c.	5	14	0
Sept.	30.	To the Working Stock, per the O. B. -	12	3	0	0
			85	21	9	0

ABSTRACT of the Labour performed by the Working Stock, in mending Roads, cleaning Ditches, &c., for which no particular Crop or Field may be made Dr; in such cases the General Profit and Loss Account is to be made Dr.

			Yok.	£	s.	d.
Aug.	31.	To the Working Stock, per the O. B. -	8	2	0	0
Sept.	30.	To the Working Stock, per the O. B. - -	4	1	0	0
			12	3	0	0

ABSTRACT of Small Charges incurred on Account of the various Fields, for the Amount of which the Cash-Account will receive Cr, and each Field will be made Dr for its respective Sum.

					£	s.	d.
March	11.	No 1.	To Cash paid for Seed Tares, per the O. B. - -	£0 6 6			
April	24.	——	To Cash paid for planting Potatoes, &c., per the O. B. -	0 13 8			
Oct.	7.	——	To Cash paid for gathering Potatoes, per the O. B. - -	1 0 0			
					2	0	2
March	5.	No 2.	To Cash paid for blasting of Stones, per the O. B. -	£0 3 0			
Sept.	7.	——	To Cash paid Extra Labourers, per the O. B, - -	0 5 0			
					0	8	0
April	13.	No 3.	To Cash, per the O. B. -	£0 13 4			
May	5.	——	To Cash, per the O. B. -	6 6 0			
——	19.	——	To Cash, per the O. B. -	0 12 0			
					7	11	4
Sept.	15.	No 4.	To Cash, per the O. B. -	£0 5 0			
					0	5	0
May	26.	No 5.	To Cash, per the O. B. -	£0 2 0			
					0	2	0
					10	6	6

(12)

ABSTRACT of SMALL CHARGES incurred on Account of the Working Stock, taken from the Petty Cash-Book for the Farm, as stated in the Operation-Book, for which the Working Stock is Dr and Cash Cr.

			£	s.	d.
Dec.	22.	To Cash, per the O. B. -	0	1	4
Jan.	9.	To Cash, per the O. B. - -	0	10	6
Feb.	15.	To Cash, per the O. B. -	0	5	6
Aug.	11.	To Cash, per the O. B. - -	0	12	6
			1	9	10

ABSTRACT of the CASH paid Monthly, taken from the Petty Cash-Book for House Expenses, for which House Expenses is to be made Dr and Cash Cr.

			£	s.	d.
Nov.	30.	To Cash paid Small Charges, per the O. B.	1	11	0
Dec.	31.	To Cash paid Small Charges, per the O. B.	4	7	0
Jan.	31.	To Cash paid Small Charges, per the O. B.	3	10	0
Feb.	28.	To Cash paid Small Charges, per the O. B.	2	12	0
March	31.	To Cash paid Small Charges, per the O. B.	2	10	0
April	30.	To Cash paid Small Charges, per the O. B.	1	10	0
May	31.	To Cash paid Small Charges, per the O. B.	5	10	4
June	30.	To Cash paid Small Charges, per the O. B.	1	10	0
July	31.	To Cash paid Small Charges, per the O. B.	3	14	0
Aug.	31.	To Cash paid Small Charges, per the O. B.	3	5	0
Sept.	30.	To Cash paid Small Charges, per the O. B.	3	10	0
Oct.	31.	To Cash paid Small Charges, per the O. B.	3	15	0
			37	4	4

OPERATION-BOOK;

SHOWING THE

TIME AND PLACE IN WHICH EVERY TRANSACTION HAS
BEEN PERFORMED ON THE SUPPOSED FARM
OF MEAL-MOUNT,

From the 1*st of November*, 1825, *till the* 1*st of November*, 1826.

REMARKS

ON THE

OPERATION-BOOK.

To the Farmer or Overseer, who wishes to keep a correct statement of the time and place in which every operation has been performed, the necessity and utility of keeping such a book as the following must be so obvious as to require no demonstration, and is of itself so simple as to need little or no explanation.

The Farm to which the following Operation-Book is adapted is supposed to contain 100 acres, divided into five equal parts, as under :—

Name of the Farm.	Situation.	Parish.	Quality of Soil.	Extent.			Length of Lease.	Rate per Acre.		
				Ac.	Ro.	Po.		£	s.	d.
Meal-Mount.	Two Miles from Crieff.	Muthill.	Fit for Wheat, Oats, and Green Crop.	100	0	0	19 Years.	2	0	0

NUMBER of FIELDS, their Contents and Crop, at November 1*st*, 1825.

No 1.	No 2.	No 3.	No 4.	No 5.	No 1.—20 Acres. No 2.—20 Acres. No 3.—20 Acres. No 4.—20 Acres. No 5.—20 Acres.
Corn Stubble.	Clover Ley.	Laid out in Grass.	Fallow.	Pasture.	

It may not be out of place here to state the quantity of seed which may be required for these fields, and at the same time to state what returns may be expected from them. In doing this I am well aware that it will be observed by some, that this is cutting before the point, and that it is much easier to be a Farmer with pen and ink than with plough and harrow. To such observations I beg leave to state, by way of answer,—That, so far as the *mere* article of Book-keeping is concerned, it makes no matter whether my calculations either of seed or crop, as to quantity, be correct or not. Others will state by way of objection,—"That the difference of soil and climate, the distance from manure and market-towns, the change of seasons and prices, &c., render it next to impossible for a Farmer to keep his Books according to any given method or system." These circumstances, so far from being objections to systematical Book-keeping, are, in my opinion, strong arguments calculated to induce every Farmer in Scotland to keep his Accounts with as much accuracy as if he were a West-India Merchant or a London Banker. But to state part of what was proposed:—There are 10 acres of No 1 to be planted with potatoes, 16 firlots of seed to each acre; 5 acres of same field to be sown with turnip, 3 lb. of seed to an acre; 4½ acres of same field to be sown with pease and beans, and ½ acre of said field to be sown with beans and tares. No 2 to be sown with 21 bolls of corn for the 20 acres. No 4 to be sown with 13 pecks of barley to each acre, 8 lb. of red and 2 lb. of white clover-seed, with 5 pecks of rye-grass seed to an acre. No 5 to be pastured with milch cows, calves, &c. Let it be kept in mind, that one man and two horses engaged together for five hours make one yoking; that the shortness of the day, the state of weather, and other incidents, may prevent the same number of yokings being performed on every day.

NOVEMBER, 1825.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	.	d.	L.	s.	d.	L.	s.	d.
1.	Ploughing, . .	4	1	...	...															
2.	Do. . .	3	...	15	...															
3.	Do. . .	4	1	...	...															
4.	Do. . .	4	1	...	...															
5.	Do . .	4	1	...	...															
6.	Do. . .	4	1	...	...															
7.	SUNDAY.																			
8.	Driving Dung, . .	3	...	15	...															
9.	Ploughing, . .	4	1	...	...															
10.	Do. . .	3	...	15	...															
11.	Driving Stones to a Drain, .	4	...	...	...	1	...	...												
12.	Do. do. .	4	...	...	...	1	...	...												
13.	Do. do. .	3	...	...	...	...	15	...												
14.	SUNDAY.																			
15.	Ploughing, .	3	...	15	...															
16.	Do. . .	3	...	15	...															
17.	Do. . .	3	...	15	...															
18.	Driving Dung, .	3	...	15	...															
19.	Ploughing, .	3	...	15	...															
20.	Do. . .	2½	...	12	6															
21.	SUNDAY.																			
22.	Filling a Drain, .	3	...	...	...	...	15	...												
23.	Do. do. .	3	...	...	...	...	15	...												
24.	Ploughing, .	3	...	15	...															
25.	Do. . .	3	...	15	...															
26.	Mixing Dung, .	3	...	15	...															
27.	Do. do. .	2½	...	12	6															
28.	SUNDAY.																			
29.	Ploughing, .	3	...	15	...													16	17	6
30.	Do. . .	2½	...	12	6													4	5	...
		84½	6	17	6	4	5	...										21	2	6

* A Petty Cash-Book is necessary for entering small incidental charges which may be incurred either on account of the Working Stock, Feeding Stock, any Field in particular, or on the Farm in general, or on account of the House Expenses, &c.; which small Charges it would be inconvenient to enter singly into the principal Cash-Book. When extra Day-labourers are required to make Drains, to blast Stones, cut Potatoes, make Hay, &c., the Field on which, or for which they perform their work, is here to be made Dr for the sum paid on their account.

NOVEMBER, 1825.

Date.		Petty Cash-Book for the Farm.*			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
29.	Paid the Grocer's Account for this Month, .	...	...	...	1	2	6
...	Paid the Shoemaker's Account for this Month, .	...	...	...	...	8	6
					1	11	...

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* These small Accounts may be added up once a month, or once a quarter, and the Amount expended carried to the Credit of the Cash-Account, and the several Accounts debited with their respective Sums. In the present System I have only made an Abstract for each of these Accounts at the Year's end. When there is no Money to mark, the Blanks of this side of the Operation-Book may be filled up with Remarks on the Weather, State of the Seasons, and Prices, &c.

DECEMBER, 1825.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Driving Dung, .	2½	...	12	6															
2.	Do. do. .	2½	...	12	6															
3.	Do. do. .	2½	...	12	6															
4.	Do. do. .	2½	...	12	6															
5.	SUNDAY.																			
6.	Mixing Dung, .	2	...	...	...	...	...	...	...	...	...	...	10	...						
7.	Away for Coals,* .	4																		
8.	Do. do. .	4																		
9.	Top-dressing,† .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
10.	Do. .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
11.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
12.	SUNDAY.																			
13.	Mixing Top-dressing,	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
14.	Laying on do. .	2	...	...	...	...	...	...							...	10	...			
15.	Threshing Oats,‡ .	2	...	...	...	...	10	...	...	...	...	...	...	...						
16.	Carting Dung, .	2	...	...	...	...	...	...	...	...	...	...	10	...						
17.	Do. do. .	2	...	...	...	...	...	...	...	...	...	...	10	...						
18.	Do. do. .	2	...	...	...	...	...	...	...	...	...	...	10	...						
19.	SUNDAY.																			
20.	Top-dressing, .	2	...	...	...	...	10	...												
21.	Do. .	2	...	...	...	...	10	...												
22.	Taking off Stones, .	2	...	...	...	...	...	...	...	10	...									
23.	Do. do.	1½	...	...	...	...	...	...	...	7	6									
24.	Carting Dung, .	2	...	10																
25.	Do. do. .	2	...	10																
26.	SUNDAY.																			
27.	Carting Dung, .	2	...	10	...													6	...	...
28.	Do. do. .	2	...	10	...													1	10	...
29.	Do. do. .	2	...	10	...													0	17	6
30.	Do. do. .	2	...	10	...													2	...	...
31.	Do. do. .	2	...	10	..													2	10	...
			6	...	...	1	10	...	...	17	6	2	...	...	2	10	...	12	17	6

---

* The Household Expense Account will be charged with the Value of these eight Yokings.

† Top-dressing in this part of the country often being the Cleaning of Roads, and such like, the Field on which it is laid in that case is only charged with the Value of Labour.

‡ No 2 is charged with the Expense of Thrashing these Oats as they are for its Seed.

DECEMBER, 1825.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s	d.	L.	s.	d.
7.	House Expenses *Dr* to Cash paid for Coals, &c. .	...	...	...	2	...	...
13.	House Expenses *Dr* to Cash paid for Beef, .	...	...	...	...	15	...
20	House Expenses *Dr* to Cash paid for Candle, .	...	...	...	...	2	...
22.	Working Stock *Dr* to Cash paid Candles for the Stable,	...	1	4	...	..	...
29.	House Expenses *Dr* to Cash paid sundry Accounts,	...	...	...	1	10	...
					4	7	...
...	Ditto do. do. to the Working Stock for eight Yokings at Coals, . . .	...	...	...	2	...	...
					6	7	...

JANUARY, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s	d.	L.	s.	d.	L.	s.	d.
1.	Carting Dung, .	2	...	10																
2.	Do. do. .	2	...	10																
3.	SUNDAY.																			
4.	Carting Dung, .	2	...	10																
5.	Do. do. .	2	...	10																
6.	Carting Earth to mix Dung, . .	2	...	8																
7.	Do. do. . .	2	...	8																
8.	Do. do. .	2	...	6																
9.	Do. do. . .	2	...	9																
10.	SUNDAY.																			
11.	Mixing Dung, . .	*2 *m*	...	4																
12.	Do. do. . .	2 *m*	...	4																
13.	Driving Dung, .	2½	...	...	...	...	...	...	...	...	...	...	12	6						
14.	Do. do. . .	2	...	...	...	...	...	...	...	...	...	...	10							
15.	Do. do. .	2	...	...	...	...	...	...	...	...	...	...	10							
16.	Do. do. . .	2½	...	...	...	...	...	...	...	...	...	...	12	6						
17.	SUNDAY.																			
18.	Draining, .	2	...	...	...	...	10	...												
19.	Do. . .	2	...	...	...	...	10													
20.	Do. . .	2	...	...	...	...	10													
21.	Do. . . .	2½	...	...	...	...	...	...	...	12	6									
22.	Do. . .	2½	...	...	...	...	...	...	...	12	6									
23.	Do. . .	2½	...	...	...	...	...	...	...	12	6									
24.	SUNDAY.																			
25.	Thrashing Oats for Seed, . .	2	...	...	...	...	10													
26.	Carting Dung, .	2	...	10	...															
27.	Mixing do. .	2 *m*	...	3														5	10	...
28.	Turning do. . .	2 *m*	...	3														2	...	...
29.	Ploughing, . .	2	...	10														1	17	6
30.	Do. . .	1	...	5														2	5	...
31.	SUNDAY.																			
			5	10	...	2	...	...	1	17	6	2	5					11	12	6

* The letter *m* denotes that the Men have been working in, or for a Field, &c. but not the Horses.

JANUARY, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
9.	Working Stock *Dr* to Cash paid the Farrier, .		10	6			
30.	House Expenses *Dr* To Cash, paid sundry Accounts this Month, ...	....	....	....	3	10	....

FEBRUARY, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Ploughing, .	3	...	...	...	...	15	...												
2.	Do. . .	3	...	...	...	...	15													
3.	Do. . .	3	...	...	...	...	15													
4.	Do. . .	3	...	...	...	...	15													
5.	Do. . .	2½	...	...	...	...	12	6												
6.	Do. . .	2½	...	...	...	...	12	6												
7.	SUNDAY.																			
8.	Driving out Dung, .	2½	...	...	...	...	...	...	...	...	...	...	12	6						
9.	Do. do.	3	...	...	...	...	...	...	...	...	...	...	15	...						
10.	Raising and taking off Stones, . .	2½	...	...	...	...	...	...	...	...	...	...	12	6						
11.	Ploughing, . .	3	...	...	...	...	15													
12.	Taking off Stones, .	3	...	...	...	...	...	...	...	15	...									
13.	Carting Dung, .	2½	...	12	6															
14.	SUNDAY.																			
15.	Ploughing, . .	3	...	...	...	...	15													
16.	Do. . .	3	...	...	...	...	15													
17.	Do. . .	2	...	...	...	...	10													
18.	Carting Dung, .	3	...	15	...															
19.	Do. do. .	3	...	15	...															
20.	Do. do. .	3	...	15	...															
21.	SUNDAY.																			
22.	Top-Dressing, .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10				
23.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10		3	17	6
24.	Ploughing, . .	3	...	...	...	...	15											8	5	...
25.	Do. . .	2	...	...	...	...	10											...	15	...
26.	Mixing Dung, .	2	...	10														2		
27.	Do. . .	2	...	10														1		
28.	SUNDAY.		3	17	6	8	5	...	...	15		2	...	...	1	...		15	17	6

FEBRUARY, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
15.	Working-Stock *Dr* to Cash paid the Saddler, .	...	15	6			
27.	House Expenses *Dr* to Cash, paid Sundry Accounts this Month, ...	...	...	...	2	12	0
					2	12	0

MARCH, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Driving out Dung,	4	1	...	...	...	...	...												
2.	Do.	4	1	...	...	...	...	...												
3.	Do.	3	...	15	...	...	...	...												
4.	Ploughing,	4	...	...	...	1	...	...												
5.	Do.	4	...	...	...	1	...	...												
6.	Do.	4	...	...	...	1	...	...												
7.	SUNDAY.																			
8.	Ploughing,	4	...	...	...	1	...	...												
9.	Do.	4	...	...	...	1	...	...												
10.	Do.	4	...	...	...	1	...	...												
11.	Cross-ploughing for Beans,	4	1	...	...	...	...	...												
12.	Dunging, do.	4	1	...	...	...	...	...												
13.	Drilling, do.	4	1	...	...	...	...	...												
14.	SUNDAY.																			
15.	Cross-ploughing,	4	1	...	...	...	...	...												
16.	Do.	4	1	...	...	...	...	...												
17.	Driving out Dung,	4	1	...	...	...	...	...												
18.	Driving Earth to mix do.	4	1	...	...	...	...	...												
19.	Filling a Drain,	4	1	...	...	...	...	...												
20.	Do. do.	3	...	15	...	...	...	...												
21.	SUNDAY.																			
22.	Sowing and Harrowing,	4	...	...	...	1	...	...												
23.	Do. do.	4	...	...	...	1	...	...												
24.	Do.	4	...	...	...	1	...	...												
25.	Driving Dung,	4	1	...	...	...	...	...												
26.	Do. do.	4	1	...	...	...	...	...												
27.	Water-furrowing, &c.	4	...	...	...	1	...	...												
28.	SUNDAY.																			
29.	Top-Dressing,	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	13	10	...
30.	Do.	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...	10	...	...
31.	Do.	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...	2	10	...
			13	10	0	10	0	0	0	0	0	0	0	0	2	10	0	26	0	0

MARCH, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
5.	No 2 *Dr* to Cash paid Blasting of Stones,	...	3	...			
11.	No 1 *Dr* to Cash for Seed-Tares for ½ Acre,	...	6	6			
12.	No 1 *Dr* to Farm-Store Deposit for Seed-Beans to 4½ Acres 8 Bolls, at L.1,	8	...	...			
23.	No 2 *Dr* to Farm-Store Deposit Account for 21 Bolls of Seed-Oats, at 21s. per Boll,	22	1	...			
29.	House Expenses *Dr* to Cash for sundry small Accounts paid this Month,	...	...	...	2	10	0

APRIL, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Cross-ploughing for Potatoes, .	4	1	...	...															
2.	Do. do. .	4	1	...	...															
3.	Do. do. .	4	1	...	...															
4.	SUNDAY.																			
5.	Harrowing for Potatoes,	4	1	...	...															
6.	Do. do..	4	1	...	...															
7.	Making Drills, .	4	1	...	...															
8.	Do. do. .	3	...	15	...															
9.	Dunging Potatoes, .	3	...	15	...															
10.	Do. do. .	4	1	...	...															
11.	SUNDAY.																			
12.	Planting and Covering Potatoes, .	4	1	...	...															
13.	Covering do. .	3	...	15	...															
14.	Taking off Stones, .	4	...	...	...	...	...	...	1	...	...									
15.	Do. do.	4	...	...	...	...	...	...	1	...	...									
16.	Cross-ploughing Potatoes, . .	4	1	...	..															
17.	Harrowing do. .	2½	...	12	6															
18.	SUNDAY.																			
19.	Making Drills, .	4	1	...	...															
20.	Dunging do. .	3	...	15	...															
21.	Covering do. .	4	1	...	...															
22.	Driving Stones to Fence, . .	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...			
23.	Do. do. .	4	...	...	...	...	...	...	1	...	...									
24.	Cleaning off Stones,	4	...	...	...	...	...	...	1	...	...									
25.	SUNDAY.																			
26.	Dunging, . .	4	...	...	...	...	...	...	...	...	...	1								
27.	Thrashing Barley Seed,	4	...	...	...	...	...	...	...	...	...	1						16	17	6
28.	Ploughing,* .	4	...	10	...	...	...	...	...	...	...	...	10					4	5	...
29.	Harrowing and Rolling,	4	...	15	...	...	...	...	...	5	...							2	10	...
30.	Preparing for Turnip,	4	1	...	...													1	...	...
			16	17	6				4	5	0	2	10	0	1	0	0	24	12	6

* From the manner in which the value of this day's labour is stated, you are to observe, that two of the Yokings have been on No 1, and two of them on No 4, on the 29th of this month. Suppose that there were three of the horses harrowing and one of them rolling, No 1 is charged with 15s. and No 3 with 5s. This example will show how such cases are to be stated.

APRIL, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
15.	No 3. *Dr* to Cash paid 4 Boys and 6 Girls for gathering Stones for 2 Days, at 8d. each, per Day, . .	....	13	4			
24.	No 1. *Dr* to Cash paid for Cutting and Planting Potatoes this Month, ...	....	13	8			
29.	House Expenses *Dr* to Cash paid sundry small Accounts for this Month, . . .	....	....	....	1	10	....
					1	10	....

MAY, 1826.

Date	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Ploughing, . .	4	...	...	...	...	...	...	...	...	...	1	...	...						
	SUNDAY.																			
3.	Ploughing, .	4	...	...	...	...	...	...	...	...	...	1	...	...						
4.	Do. . .	4	...	...	...	...	...	...	...	...	...	1	...	...						
5.	Do. . .	4	...	...	...	...	...	...	...	...	...	1	...	...						
6.	Do. . .	4	...	...	...	...	...	...	...	...	...	1	...	...						
7.	Do . .	4	...	...	...	...	...	...	...	...	...	1	...	...						
8.	Do. . .	4	...	...	...	...	...	...	...	...	...	1	...	...						
9.	SUNDAY.																			
10.	Sowing and Harrowing,	4	...	...	...	...	...	...	...	...	...	1	...	...						
11.	Do. do. .	4	...	...	...	...	...	...	...	...	...	1	...	...						
12.	Do. do. .	4	...	...	...	...	...	...	...	...	...	1	...	...						
13.	Finishing the Barley-Seed,	4	...	...	...	...	...	...	...	...	...	1	...	...						
14.	Cross-Ploughing for Turnip, .	4	1	...	...															
15.	Do. do. .	4	1	...	...															
16.	SUNDAY.																			
17.	Preparing for Turnips,	4	1	...	...															
18.	Do. do. .	4	1	...	...															
19.	Dunging do. .	3	...	15	...															
20.	Finishing do. .	4	1	...	...															
21.	Do. do. . .	3	...	15	...															
22.	Embanking, .	4	...	...	...	...	...	...	...	...	...	1	...	...						
23.	SUNDAY.																			
24.	Preparing for Turnips,	2	...	10	...															
25.	Do. do.	2	...	10	...															
26.	Repairing a Fence, .	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...			
27.	Sowing Turnips, .	2	...	10	...															
28.	Preparing for do. .	2	...	10	...															
29.	Do. do. . .	2	...	10	...															
30.	SUNDAY.																	9	15	...
																		12	...	...
31.	Dunging, . .	3	...	15	...													...	15	...
			9	15	...							12	...	...	...	15	...	22	10	...

MAY, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
3.	Paid the Postage of a Letter, ...	....	....	....	....	1	4
7.	House Expenses *Dr* to Cash paid the Tailor for making a Suit of Clothes, ...	....	....	....	....	13	6
13.	No 4. *Dr* to the Farm-Store Deposit for 16¼ Bolls of Seed-Barley, at 28s. per Boll, . .	22	15	....			
17.	House Expenses *Dr* to Cash paid for the above Suit of Clothes, ...	....	....	....	3	15	6
26.	No 5. *Dr* to Cash paid Wages to one Man repairing a Fence, ...	....	2	....			
31.	House Expenses *Dr* to Cash paid the Grocer's Account for this Month, . .	....	....	....	1	....	....
		22	17	....	5	10	4

JUNE, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Making Drills for Turnips, . .	2	...	10	...															
2.	Finishing do. .	3	...	15	...															
3.	Casting Peats, .	2 *m*																		
4.	Do. do. .	2 *m*																		
5.	Draining, . .	4	1	...	...															
6.	SUNDAY.																			
7.	Cleaning a Ditch,	4	...	...	...	...	...	...	...	...	...	1	...	...						
8.	Weeding, . .	2 *m*	...	...	...	...	4	...												
9.	Driving Earth for Compost, . . .	4																		
10.	Driving Dung for do.	4																		
11.	Driving Lime, .	4																		
12.	Do. do. .	4																		
13.	SUNDAY.																			
14.	Draining, . .	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...			
15.	Cutting Hay, .	2 *m*	...	...	...	...	...	...	...	5	...									
16.	Do. do. .	2 *m*	...	...	...	...	...	...	...	5	...									
17.	Draining, .	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...			
18.	Do. . .	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...			
19.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
20.	SUNDAY.																			
21.	Striping Potatoes, .	2	...	10	...															
22.	Do. do. .	2	...	10	...															
23.	Cleaning Potatoes with a Harrow, .	2	...	10	...															
24.	Do. do. .	2	...	10	...															
25.	Putting Hay in Ricks,	4	...	...	...	...	...	...	1	...	...									
26.	Cleaning Potatoes, .	3	...	15	...															
27.	SUNDAY.																	5	...	...
																		...	4	...
28.	Driving Peats, .	4																1	10	...
29.	Do. do. .	4																1	4	...
30.	Weeding, . .	2 *m*	...	...	...	...	...	...	...	...	...	...	4	...				3	5	...
			5	...	...	...	4	...	1	10	...	1	4	...	3	5	...	11	3	...

JUNE, 1826.

Date.					Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
					L.	s.	d.	L.	s.	d.
24.	House Expenses *Dr* to Sundries.									
	To the Working Stock, 8 Yokings driving Peats, . .	L.2	0	0						
	To ditto for 2 Men casting do. .	0	4	0						
		L.2	4	0						
	To Cash paid Small Charges this Month, ...	1	10	0						
								3	14	0

JULY, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s	d.	L.	s.	d.	L.	s.	d.
1.	Driving Peats, .	4																		
2.	Do. Hay, .	4	...	...	...	...	...	...	1	...	...									
3.	Do. do. .	4	...	...	...	...	...	...	1	...	...									
4.	SUNDAY.																			
5.	Making Compost, .	4																		
6.	Do. do.	4																		
7.	Putting Earth to Potatoes, .	4	1	...	...															
8.	Do. do.	4	1	...	...															
9.	Thinning Turnips, .	2	...	10	...															
10.	Do. do. .	2	...	10	...															
11.	SUNDAY.																			
12.	Putting Earth to Potatoes, .	4	1	...	...															
13.	Do. do.	4	1	...	...															
14.	Away for Coals, .	4																		
15.	Do. do. .	4																		
16.	Putting Earth to Turnips, .	2	...	10	...															
17.	Do. do, .	2	...	10	...															
18.	SUNDAY.																			
19.	Making Hay Stack,	4	...	...	...	...	...	...	1	...	...									
20.	Crowning do. .	2 *m*	...	...	...	...	...	...	...	4	...									
21.	Away for Lime, .	4																		
22.	Do. do. .	4																		
23.	Making Compost, .	3																		
24.	Do. do. .	3																		
25.	SUNDAY.																			
26.	Driving Moss, .	3																		
27.	Do. do. for Compost,	3																		
28.	Driving Dung for do.	4																		
29.	Making Compost, .	3																6	...	...
30.	Driving Stones to Fence, .	3	...	...	...	...	...	...	...	...	...	...	15	...				3	4	...
31.	Do. do.	3	...	...	...	...	...	...	...	...	...	...	15	...				1	10	...
			6	...	...				3	4	0	1	10	0				10	14	...

JULY, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
2.	House Expenses *Dr* to Cash paid Extra Labourers in the Peat Moss, ...	...	...	...	...	14	...
5.	No 3. *Dr* to Cash paid Day-Labourers for making Hay, ...	6	6	...			
19.	No 3. *Dr* to Cash paid Extra Labourers making the Hay Stack, ...	...	12	...			
23.	House Expenses *Dr* to Sundries, To the Working Stock, driving Peats and Coals, 12 Yokings, . L.3 0 0 To Cash paid Coals and Tolls, &c. . 2 0 0 To ditto paid Small Charges this Month, 1 0 0 L.6 0 0						
		6	18	...	6	14	...

AUGUST, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour, on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	SUNDAY.																			
2.	Away at Lime, .	4																		
3.	Do. do. .	4																		
4.	Making a Drain, .	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...			
5.	Do. do. .	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...			
6.	Mending a Road, .	4																		
7.	Do. do. .	4																		
8.	SUNDAY.																			
9.	Driving Moss for Compost, . .	3																		
10.	Do. do.	3																		
11.	Mixing Compost, .	2 *m*																		
12.	Do. do.	2 *m*																		
13.	Away at Lime, .	4																		
14.	Do. do. .	4																		
15.	SUNDAY.																			
16.	Cutting Beans, .	2 *m*	...	4	...															
17.	Do. do. . .	2 *m*	...	4	...															
18.	Draining, . .	3	...	...	...	...	...	...	...	...	...	...	15	...						
19.	Do. . .	3	...	...	...	...	...	...	...	...	...	...	15	...						
20.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	10	...						
21.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	10	...						
22.	SUNDAY.																			
23.	Binding Barley, .	2 *m*	...	...	...	...	...	...	...	...	...	...	4	...						
24.	Do. do.	2 *m*	...	...	...	...	...	...	...	...	...	...	4	...						
25.	Driving Stones to a Drain, .	3	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...			
26.	Do. do. .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
27.	Away at Coals, .	4																		
28.	Do. do. .	4																		
29.	SUNDAY.																			
																		1	8	...
30.	Putting in Beans, &c.	2	...	10	...													2	18	...
31.	Do., and Crowning, .	2	...	10	...													2	15	...
			1	8	...							2	18	...	2	15	...	7	1	...

AUGUST, 1826.

Date.			Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
			L.	s.	d.	L.	s.	d.
11.	Working-Stock *Dr* to Cash paid the Cartwright,		....	12	6			
24.	House Expenses *Dr* to Cash, paid small Charges this Month, ...		....	....	...	2	5	...
27.	House Expenses *Dr* to Sundries, To the Working-Stock for 8 Yokings, To Cash, paid Coals, &c. . .	 L.2 0 0 1 0 0						
		L.3 0 0	....	....	....	3	....	....
			....	12	6	5	5	0

SEPTEMBER, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Ploughing for Wheat,	4	1	...	...															
2.	Do. do. .	3	...	15	...															
3.	Do. do. .	3	...	15	...															
4.	Do. do. .	4	1	...	...															
5.	SUNDAY.																			
6.	Putting in and Crowning Corn, .	3	...	...	...	...	15	...												
7.	Do. do. .	3	...	...	...	...	15	...												
8.	Driving Moss for Compost, . . .	2																		
9.	Do. do. .	2																		
10.	Cleaning Ditches, .	2																		
11.	Do. do. .	2																		
12.	SUNDAY.																			
13.	Putting in and Crowning Barley, .	2	...	...	...	...	...	...	...	...	...	...	10	...						
14.	Do. do. .	2½	...	...	...	...	...	...	...	...	...	...	12	6						
15.	Do. do. .	2	...	...	...	...	...	...	...	...	...	...	10	...						
16.	Preparing for Wheat,	3	...	15	...															
17.	Do. do. .	2	...	10	...															
18.	Sowing and Harrowing, . .	2	...	10	...															
19.	SUNDAY.																			
20.	Finishing 5 Acres of Wheat-Seed, .	3	...	15	...															
21.	Draining, . .	2	...	10	...															
22.	Do. . .	3	...	15	...															
23.	Do. . .	2	...	10	...															
24.	Away at Lime, .	4																		
25.	Do. . .	4																		
26.	SUNDAY.																			
27.	Lifting Potatoes, .	2	...	10	...															
28.	Do. and Pitting do.	2	...	10	...													8	15	...
29.	Away for Coals, .	4																1	10	...
30.	Do. do. .	4																1	12	6
			8	15	...	1	10	...	...	...	...	1	12	6	...	...	...	11	17	6

SEPTEMBER, 1826.

Date.		Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
		L.	s.	d.	L.	s.	d.
7.	No 2. *Dr* to Cash, paid extra Labourers for Putting in,	...	5	....			
15.	No 4. *Dr* to Cash, paid extra Labourers at putting in,	....	5	....			
30.	Household Expenses *Dr* to Sundries						
	To the Working-Stock for Driving Coals, 8 Yokings,	....	....	....	2	....	....
	To Cash, paid Coals and other small Charges this Month, ...	....	....	....	3	10	....
					5	10	....

OCTOBER, 1826.

Date.	Title of the Work performed on each Day.	Number of Yokings.	Value of Labour on No 1.			Value of Labour on No 2.			Value of Labour on No 3.			Value of Labour on No 4.			Value of Labour on No 5.			Total of Labour for one Month.		
			L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.	L.	s.	d.
1.	Draining, . .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
2.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
3.	SUNDAY.																			
4.	Thrashing Oats, .	2	...	...	...	...	10	...												
5.	Do. do. .	2	...	...	...	...	10	...												
6.	Lifting Potatoes, &c.	2	...	10	...															
7.	Do. and Pitting do.	3	...	15	...															
8.	Draining, . .	2	...	10	...															
9.	Do. . .	2	...	10	...															
10.	SUNDAY.																			
11.	Thrashing Oats, .	2	...	...	...	...	10	...												
12.	Do. do. .	2	...	...	...	...	10	...												
13.	Draining, .	2	...	...	...	...	...	...	...	...	...	...	10	...						
14.	Do. . .	2	...	...	...	...	...	...	...	...	...	...	10	...						
15.	Do. . .	3	...	...	...	...	...	...	...	...	...	...	15	...						
16.	Do. . .	3	...	...	...	...	...	...	...	...	...	...	15	...						
17.	SUNDAY.																			
18.	Ploughing, .	3	...	...	...	...	15	...												
19.	Do. .	3	...	...	...	...	15	...												
20.	Do. . .	3	...	...	...	...	15	...												
21.	Do. . .	2½	...	...	...	...	12	6												
22.	Do. . .	2½	...	...	...	...	12	6												
23.	Do. . .	2	...	...	...	...	10	...												
24.	SUNDAY.																			
25.	Thrashing Barley,	2	...	...	...	...	...	...	...	...	...	...	10	...						
26.	Do. do. .	2	...	...	...	...	...	...	...	...	...	...	10	...						
27.	Ploughing, .	3	...	...	...	...	15	...												
28.	Do. . .	2	...	...	...	...	10	...												
29.	Draining, . .	2	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...			
30.	Do. . .	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...			
31.	SUNDAY.																	2	5	...
																		7	5	...
																		3	10	...
																		2	10	...
			2	5	0	7	5	0	0	0	0	3	10	0	2	10	0	15	10	0

OCTOBER, 1826.

Date					Petty Cash-Book for the Farm.			Petty Cash-Book for the House Expenses.		
					L.	s.	d.	L.	s.	d.
7.	No 1. *Dr* to Cash paid Gathering of Potatoes, .				1	...	...			
19.	House Expenses *Dr* to Cash.									
	Paid the Baker's Account, . .	L.0	10	6						
	Paid the Grocer's Do. . .	1	2	6						
	Paid the Shoemaker's Do. . .	0	12	6						
	Paid the Spirit-Dealer's Do. . .	0	10	6						
	Paid the Flesher's Do. . .	0	7	6						
	Paid the Postage of a Letter, . .	0	1	0						
	Paid other small Charges, .	0	10	6						
		L.3	15	0	...	...	...	3	15	...

GENERAL REMARKS

ON THE

SEASONS OF EIGHTEEN HUNDRED AND TWENTY-SIX.

NOTE.—Instead of having kept a daily Register of the State of the Weather during the preceding Months, suffice it to observe, that the Seed-time was dry and light. The drought of May, and heat of June very severe, in consequence of which the Crops (Wheat excepted) were very deficient, and particularly so in the Straw. The Harvest was so early, that Samples of new Barley were shown at Midsummer; and in many districts of Scotland the labours of Autumn were concluded by the 20th of August; after which there was a great After-springing in the Corn-fields, and the Weather continued very favourable for Live-stock till the 1st of December.

I shall conclude this part of the Work by giving the following Form of a Weekly Journal:—

WEEKLY JOURNAL OF TRANSACTIONS FROM —— TO ——

Transactions.		State of Weather.			
		Baro.	Ther.	Wind.	Rain.
Monday.					
Tuesday.					
Wednes.					
Thursday.					
Friday.					
Saturday.					
Sunday.					

LEDGER.

DEFINITION OF THE LEDGER ACCOUNTS.

The use of the Ledger is to bring together the Debits and Credits of the same articles under their respective heads, in order to show how each account has been affected after these entries have been made. These accounts in general are of three kinds, viz. Accounts of Persons, Accounts of Property, and Nominal Accounts, such as Stock or Capital, Profit and Loss, House Expenses, &c. As notes of explanation are attached to these Accounts and others where they stand in the Ledger, I shall here make a few remarks on the Account termed Working-Stock, under which title may be included Men-Servants, Maid-Servants, Horses, Horse-Harness, and all the Implements of Husbandry, such as Carts, Ploughs, Harrows, &c. Hence, instead of opening a separate account in the Ledger for each of these articles which may be in the Inventory of your General Stock, or for such of them as may afterwards be purchased, it will be sufficient, after having selected these articles, with their whole amount, to go to the Ledger, and, on the left-hand side, write the title Working-Stock Dr, and on the right-hand Contra Cr. Then on the line below the title of the account, after writing in the margin the date on which your inventory was taken, write, To Stock in hand per the Journal, in the money columns state the amount, and in the folio column state, by a figure, what folio of your Ledger the Stock-Account stands in, and in the column next to the date of the month state the number of the pages of the Journal in which these several articles stand. The Working-Stock will also become Dr for all charges which it incurs, such as Milk and Meal, &c. for Servants, Corn and Hay for Horses, Repairs made upon the Implements, Servants' Wages, &c. They will be credited by the value of their labour upon the respective fields, the value of their Dung, and, lastly, by their value at Balance.

TO POST OR TRANSFER SIMPLE ENTRIES FROM THE JOURNAL TO THE LEDGER.

Consider from the nature of the transaction what person or article is Dr. Then go to the Ledger, and debit that person or article, to the article or person who is Cr. Then turn to the account of the person or article who is Cr, and credit it by the title of the Account who is Dr.

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STOCK,* *Dr.*

				Fo.	L.	s.	d.
1825.							
Nov.	1	1	To Sundries, per the Journal, . . .		21	0	0
1826.							
Oct.	31.		To Balance for the Amount of my Effects at this Date, ...	16	1366	17	6
					1387	17	6

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* Stock or Capital is a term used to represent the property of the Owner of the Books. On the *Cr* side is stated the amount of the property brought into Trade; and on the *Dr* side are contained the debts then due by him. The difference shows his Net Capital at that time.

Note.—The figures in the columns of both the *Dr* and *Cr* sides, immediately after the days of the month, refer to the pages of the Journal from which the entries are taken. Those in the column next before the money, on either side, show the folio where the corresponding account stands in the Ledger.

(1)

CONTRA, *Cr.*

				Fo.	L.	s.	d.
1825. Nov.	1.	1	By Sundries, per the Journal, . . .		1000	0	0
1826. Oct.	31.		By Profit and Loss for Net Gain, . .	15	387	17	6
					1387	17	6

(2)

CASH, *Dr.*

				Fo.	L.	s.	d.
Nov.	1.	1	To Stock per the Journal, . .	1	500	10	0
—	29.	2	To David Dingwell, received in part, .	5	25	10	0
April	21.	3	To Do. do. received in full, .	5	24	10	0
May	3.	3	To Paul Playfair, received in full, .	5	70	0	0
—	19.	4	To the Perth Banking Company, drawn on them,	15	150	0	0
June	25.	5	To No 3, for Hay, per the Journal, .	11	66	13	4
July	3.	6	To the Perth Banking Company, per the Journal,	15	103	13	7
Sept.	25.	7	To the Dairy and Feeding-Stock, per the Journal,	4	106	10	0
—	30.	7	To the Dairy and Feeding-Stock, per the Journal,	4	16	0	0
Oct.	6.	8	To No 2, per the Journal, . .	10	84	0	0
—	26.	8	To Sundries, per the Journal, . .		141	10	0
					1288	16	11

Note.—This Account on the *Dr* side contains the money brought into trade, with all the sums you receive; and on the *Cr* all those sums you pay. The balance ought to agree with the cash in hand.

(2)

CONTRA, *Cr.*

				Fo.	L.	s.	d.
Nov.	2.	2	By Sundries per the Journal,		40	5	0
	3.	2	By the Perth Banking Company per the Journal,	15	250	0	0
	15.	2	By Samuel Seekall, paid him in full,	6	5	5	0
Dec.	15.	3	By Henry Haveall, paid him in full,	6	5	5	0
	31.		By Farm-Store Deposit-Account, per the Journal,	7	10	0	0
April	8.	3	By No 1. per the Journal, paid for Seed,	9	10	0	0
May	1.	3	By Dairy Stock, per the Journal, paid for 12 Milch Cows,	4	108	0	0
	4.	3	By Manure-Deposit Account, per the Journal,	8	40	0	0
	10.	3	By Farm-Store Deposit, per the Journal,	7	19	0	0
	15.	4	By Sundries, per the Journal,		118	16	6
	17.	4	By Sundries, per the Journal,		13	1	3
	20.	4	By Household Deposit, per the Journal,	14	17	0	0
	22.	5	By the Dairy and Feeding Stock, per the Journal,	4	39	0	0
	31.	5	By the Dairy and Feeding Stock, per the Journal,	4	2	0	0
June	12.	5	By the Manure Deposit, per the Journal,	8	2	0	0
July	1.	6	By Adam Auld, paid one-half of his Account, per the Journal,	8	123	11	6
	29.	6	By Manure Deposit, paid 16 Bolls of Lime,	8	2	0	0
Aug.	2.	6	By Manure Deposit, paid 16 Bolls of Lime,	8	2	0	0
	13.	6	By Manure Deposit, paid 16 Bolls of Lime,	8	2	0	0
	16.	7	By Farm-Store Deposit, per the Journal,	7	16	0	0
Sept.	1.	7	By No 1, paid for Seed, per the Journal,	9	7	10	0
	24.	7	By Manure Deposit, paid 16 Bolls of Lime,	8	2	0	0
Oct.	7.	8	By No 2, paid Reapers, per the Journal,	10	10	0	0
	27.	8	By Sundries paid Reapers, per the Journal,		11	0	0
	31.	8	By Sundries, per the Journal,		260	12	6
	31.	10	By the Working Stock, per the Journal,	3	1	9	10
	31.	10	By Sundries, per the Journal,		47	10	10
	31.		By Balance Account,	16	123	9	6
					1288	16	11

(3)

Working Stock,				Green Crop in A. R. P.	Hay and Straw in Stones.	Grain or Meal in B. F. P.	Dr.			
							Fo.	*L.*	*s.*	*d.*
Nov.	1.	1	To Capital, per the Journal,				1	248	0	0
May	15.	4	To Cash, per the Journal, paid Wages, .				2	18	16	6
July	1.		To the Farm Store Deposit for Corn, at 18s. 9½d. .			45 1 2	7	42	12	9½
Oct.	31.	8	To the Farm-Store Deposit for Hay, at 9d. .		968		7	36	6	0
	31.	8	To Cash, per the Journal, .				2	23	11	0
		10	To Sundries, per the Journal,					62	13	2½
	31.		To the Farm-Store Deposit for Litter, .				7	5	0	0
	31.	10	To Cash, per the yearly Abstract, per the Journal, .				2	1	9	10
			To Profit and Loss for Gain,				15	34	12	2
								473	1	6

Note.—This Account contains on the Dr side the Value of the Farmer's Stock at his Entry, with the Amount of the Expense which he has incurred. On the Cr side it contains a full Statement of the Year's Labour, with the Value attached, taken monthly from the Operation Book.

(3)

CONTRA,				Yokings on No 1.	Yokings on No 2.	Yokings on No 3.	Yokings on No 4.	Yokings on Mo 5.	Yokings in each Month.	Dung in Loads.	Cr. L.	s.	d.
Nov.	30.		By Labour of Men and Horses, per the O. B.*	67½	17				84½		21	2	6
Dec.	31.		By Labour of Men and Horses, per the O. B.	24	6	3½	8	10	51½		12	17	6
Jan.	31.		By Labour of Men and Horses, per the O. B.†	21,&c.	8	7½	9		45½		11	12	6
Feb.	28.		By Labour of Men and Horses, per the O. B.	15½	33	3	8	4	63½		15	17	6
March	31.		By Labour of Men and Horses, per the O. B.	54	40			10	104		26	0	0
April	30.		By Labour of Men and Horses, per the O. B.	67½		17	10	4	98½		24	12	6
May	31.		By Labour of Men and Horses, per the O. B.	39			48	3	90		22	10	0
June	30.		By Labour of Men and Horses, per the O. B.	20	2 m.	4, &c.	4,&c.	13	41		11	3	0
July	31.		By Labour of Men and Horses, per the O. B.	24		12, &c.	6		42		10	14	0
Aug.	31.		By Labour of Men and Horses, per the O. B.	4,&c.			10,&c.	11	25		7	1	0
Sept.	30.		By Labour of Men and Horses, per the O. B.	35	6		6½		47½		11	17	6
Oct.	31.		By Labour of Men and Horses, per the O. B.	9	29		14	10	62		15	10	0
				380½	139	47	123½	65	755				
		10	By Sundries, per the Journal, .						141		35	13	0
			By Balance-Account,‡								246	10	6
											473	1	6

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* O. B denotes the Operation Book.

† &c. added to the Number of Yokings in any Column, denotes that Labour has been performed by the Men exclusive of their Horses; for the particulars of which, reference may be made to the O. B. for that Month.

‡ You will observe, by the Value put on the Stock in the Balance-Account, that it is supposed to be worth £9, 9s. 6d. less than at Entry; but this is all supposition, for they might just as well have been supposed to be worth £80 more. In this, as well as in other cases, the Farmer will have it in his power to state facts instead of suppositions.

DAIRY AND FEEDING-STOCK, *Dr.*

				Fo.	*L.*	*s.*	*d.*
Nov.	1.	1	To Capital, per the Journal, . .	1	8	10	0
May	1.	3	To Cash, paid for 12 Milch Cows, . .	2	108	0	0
	1.		To Farm-Store Deposit for Winter-keep of 1 Cow and 1 Hog. . . .	7	3	0	0
	22.	5	To Cash, per the Journal, . .	2	39	0	0
	31.	5	To Cash, per the Journal, . . .	2	2	0	0
Oct.	31.	3	To Cash, per the Journal, paid Dairymaid's Wages, ...	2	3	0	0
	31.		To the Farm-Store Deposit for Litter, at L.5,	7	5	0	0
	31.	10	To No 5. for Pasture, per the Journal, .	13	47	0	0
	31.	10	To No 3. for 10 Acres of Second Crop, at 10s.	9	5	0	0
	31.		To Profit and Loss for Gain, . .	15	114	3	4
					334	13	4

Note.—Under the title of this account I have classed Milch-Cows, Young Cattle, &c., making them *Drs* for their value at entry, for the value of their after purchase, keeping, and all other expenses incurred on their account. On the other hand they receive credit for the value of their produce, sold or unsold, and, lastly, for their own value at the end of the year, or at whatever time a balance is made. Should a Farmer have a Dairy-Stock, a Feeding-Stock, and a Grazing-Stock, and wish to know the Profit or Loss of each Stock by itself, in such a case he will only have to open a similar account for each.

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CONTRA,				Milk in Pints.	Butter in		Cheese in		Dung in Loads.	Rates.	Cr.			
					St.	Lb.	St.	Lb.		at	Fo.	L	s.	d.
June	12.	5	By Manure Deposit, per the Journal, .						24	4/	8	4	16	0
July	29.	6	By Manure Deposit, per the Journal, .						20	4/	8	4	0	0
Sept	25.	7	By Cash, per the Jour.		66	0	135	0		20/ 6/	2	106	10	0
	30.	7	By Cash, per the Jour.								2	16	0	0
Oct.	31.	10	By the Working-Stock, per the Journal, .	730						/2*d.*	3	6	1	8
		10	By House Expenses, per the Journal,	365	3	5	3	8		20/ 6/ /2	14	5	17	8
			By Balance Account,		20	0	40	0	17	20/ 6/4/	16	35	8	0
			By Do. for Value of Stock, .								16	156	0	0
				1095	89	5	178	8	61			334	13	4

Household Furniture, *Dr.*

				Fo.	L.	s	d
Nov.	1.	1	To Stock, per the Journal, . . .	1	123	0	0

David Dingwell, *Dr.*

Nov.	1.	1	To Stock, per the Journal, . . .	1	50	0	0

Note.—The *Dr* side of any person's account contains the sums by which that person has become indebted to you, or those which you have paid to him; and the *Cr* side contains the sums by which you have become indebted to him, or those which he pays you. Hence the balance (if any) shows what is owing and by whom.

Paul Playfair, *Dr.*

Nov.	1.	1	To Stock, per the Journal, . . .	1	70	0	0

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Contra, *Cr.*

				Fo.	L.	s	d.
			By Balance Account, ...	16	120	0	0
			By Profit and Loss, paying Tear and Wear,	15	3	0	0

Contra, *Cr.*

				Fo.	L.	s	d.
Nov.	29.	2	By Cash received in part, ...	2	25	10	0
April	21.	3	By Cash received in full, . . .	2	24	10	0
					50	0	0

Contra, *Cr.*

				Fo.	L.	s	d.
May	3.	3	By Cash received in full, . . .	2	70	0	0

JAMES JUST, *Dr.*

				Fo.	L.	s.	d.
Oct.	31.	8	To Cash paid him in full, ...	2	10	10	0

SAMUEL SEEKALL, *Dr.*

Nov.	15.	2	To Cash, per the Journal, paid him in full, .	2	5	5	0

HENRY HAVEALL, *Dr.*

Dec.	15.	3	To Cash paid him in full, . . . , .	2	5	5	0

CONTRA, *Cr.*

				Fo.	*L.*	*s.*	*d.*
Nov.	1.	1	By Stock due him, per Account, . .	1	10	10	0

CONTRA, *Cr.*

Nov.	1.	1	By Stock due him, per Account, . .	1	5	5	0

CONTRA, *Cr.*

Nov.	1.	1	By Stock due him, per Account, . .	1	5	5	0

Farm-Store Deposit-Account, Dr.

				Horse Corn in B. F. P.	Hay in Stones.	Barley in Straw. B. F. P.	Corn in Straw. B. F. P.	Beans in Straw. B. F. P.	Pease in Straw. B. F. P.	Green Crop in A. R. P.	Fo.	£	s.
Nov.	1.	2	To Adam Auld, per the Journal,	...	1500	20 0 0	22 0 0	8 0 0	5 0 0	...	8	126	13
	2.	2	To Cash, per the Journal, .	20 0 0	...	...	...	...	...	...	2	18	0
Dec.	31.	3	To Cash, per the Journal, .	10 0 0	...	...	...	...	...	...	2	10	0
May	10.	3	To Cash, per the Journal, .	20 0 0	...	...	...	...	...	...	2	19	0
Aug.	16.	7	To Cash, per the Journal, .	16 0 0	...	...	...	...	...	...	2	16	0
			To Profit and Loss, for Gain,	...	...	...	...	...	...	...	15	6	13
				66 0 0	1500	20 0 0	22 0 0	8 0 0	5 0 0	...		196	6

Note.—The several Articles with which the above Account is opened, having been purchased from the outgoing Tenant on Credit, the Account at the 1st of November is, of course made Dr to Adam Auld the Seller, for which he will stand Cr in the Ledger until paid ; a which time he will be made Dr to Cash in full if all is paid, or to Cash in part if part only is paid But had the Barley, Corn, Beans, &c., which are there entered Drs to Adam Auld, (unde the General Title of Farm-Store Deposit-Account), been the Property of Timothy Tillfair, th Owner of the Books, prior to the time he took the Inventory of his Stock, the Farm-Store Deposit-Account in that case would have been made Dr to Stock or Capital for the Amount, an then posted or transferred into the Ledger in the same manner as the Working-Stock or th

Contra, *Cr.*

				Horse Corn in B. F. P.	Hay in Stones.	Barley in Straw. B. F. P.	Corn in Straw. B. F. P.	Beans in Straw. B. F. P.	Pease in Straw. B. F. P.	Green Crop in A. R. P.	Fo.	£	s.	d.
Mar.	11.		By No 1., per the O. B., for .	...	...	...	...	8 0 0	...	...	9	8	0	0
	23.		By No 2., per the O. B., for .	...	...	...	21 0 0	...	...	...	10	22	1	0
May	I.		By Dairy Stock for Winter-keep,	...	...	...	...	...	...	...	4	3	0	0
	13.		By No 4., per the O. B., for .	...	...	16 1 0	...	...	...	...	12	22	15	0
July	1.		By Working-Stock at 18s. 9½d.	45 1 2	...	...	...	...	...	...	3	42	12	9
			By ditto, at 9d.	...	968	...	...	...	...	...	3	36	6	0½
Oct.	31.	10	By ditto, per the Journal, .	15 1 2	492	...	...	...	...	...	3	33	11	2½
			By Balance-Account, .	5 1 0	40	3 3 0	1 0 0	...	5 0 0	...	16	18	0	9
			By the Working Stock for Litter Valued* at .	...	...	...	...	...	...	...	3	5	0	0
			By Dairy Stock for Litter, .	...	...	...	...	...	...	...	4	5	0	0
				66 0 0	1500	20 0 0	22 0 0	8 0 0	5 0 0	...		196	6	9

Feeding-Stock Accounts. This may serve to explain how the Farmer can make his Farm-Store Deposit-Account Dr either to those from whom the Articles were bought on Credit, or for Ready Money, or to Stock, or to the Crop of any particular Field or Stack. In short, this Account, when correctly kept, will, on the Dr side, show the quantity at entry, and those afterwards received; and on the Cr side it will show all the Disbursements, and when and by whom made. The difference will be the Store in hand.

* A Value is now put upon the Straw which is supposed to have been used as Litter, and the Working and Dairy Stocks are charged with their respective Sums.

Manure Deposit-Account, *Dr.*

				Loads of Dung.	Loads of Compost.	Bolls of Lime.	Fo.	L.	s.	d.
Nov.	1.	2	To Adam Auld, per the Journal, . . .	540	...	...	8	108	0	0
May	4.	3	To Cash, per the Journal, .	200	...	...	2	40	0	0
June	12.	5	To Sundries, per the Journal,	24	...	16	0	6	16	0
July	29.	6	To Sundries, per the Journal,	20	70	16	0	6	0	0
Aug	2	6	To Cash, per the Journal, .	...	...	16	2	2	0	0
	13.	6	To Cash, per the Journal, .	...	...	16	2	2	0	0
Sept.	24.	7	To Cash, per the Journal, .	...	90	16	2	2	0	0
Oct.	31.	10	To the Working-Stock, per the Journal, . .	...	...	...	3	21	9	0
				784	160	80		188	5	0
			To Profit and Loss for Gain,	...	...	...	15	7	11	0
								195	16	0

Adam Auld, *Dr.*

July	1.	6	To Cash, per the Journal, . .	2	123	11	6
Oct.	31.	8	To Cash, per the Journal, . .	2	123	11	6
					247	3	0

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Contra, *Cr.*

				Loads of Dung.	Loads of Compost	Bolls of Lime.	Fo.	L.	s.	d.
Oct.	31.		By No 1. for Dung at sundry Times, at 4s. .	720	...	...	9	144	0	0
			By No 4. for Dung at sundry Times, at 4s. .	64	...	...	12	12	16	0
			By Balance Account, .	...	160	80*	16	39	0	0
				784	160	80		195	16	0

* It is to be understood that, of these 80 Bolls of Lime, 20 have been taken to make Compost. See the Value put upon the Lime and Compost in the Balance Account.

Contra, *Cr.*

Nov.	1.	2	By Sundries, per the Journal, . .		247	3	0

No 1, CORN-STUBBLE,				Bolls of Seed.	Loads of Manure.	No of Yokings.	*Dr.*			
							Fo.	*L.*	*s.*	*d.*
Nov.	30.		To the Working-Stock, per the O.B. this Month, .		40	67½	3	16	17	6
Dec.	31.		To the Working-Stock, per the O. B. this Month, .		160	24	3	6	0	0
Jan.	31.		To the Working-Stock, per the O. B. this Month, . .		60	21, &c	3	5	10	0
Feb.	28.		To the Working-Stock, per the O. B. this Month, .		60	15½	3	3	17	6
March	11.		To the Farm-Store Deposit, per the O. B. for Seed-Beans,	8			7	8	0	0
	31.		To the Working-Stock, per the O. B. this Month, .		200	54	3	13	10	0
April	8.	3	To Cash for Seed-Potatoes, per the Journal, at 5s., .	40			2	10	0	0
	30.		To the Working-Stock, per the O. B. this Month, .		100	67½	3	16	17	6
May	15.	4	To Cash paid ½ Year's Rent of 20 Acres, . .				2	20	0	0
	17.	4	To Cash paid Turnip-Seed, per the Journal, . .				2		11	3
	31.		To the Working-Stock, per the O. B. this Month, .		100	39	3	9	15	0
June	30.		To the Working-Stock, per the O. B. this Month, .			20	3	5	0	0
July	31.		To the Working-Stock, per the O. B. this Month, .			24	3	6	0	0
Aug.	31.		To the Working-Stock, per the O. B. this Month, .			4, &c	3	1	8	0
Sept.	1.	7	To Cash, per the Journal, paid for Wheat-Seed, . .	5			2	7	10	0
	30.		To the Working-Stock, per the O. B. this Month, .			35	3	8	15	0
Oct.	27.	8	To Cash, per the Journal, .				2	1	0	0
	31.		To the Working-Stock, per the O. B. this Month, .			9	3	2	5	0
		8	To Cash, per the Journal, paid Rent, . . .				2	20	0	0
			To Cash, for small Charges, (*see* Abstract for No 1,) .					2	0	2
			To the Manure Deposit for Dung, at 4s. . .		720*	380½	8	144	0	0
								308	16	11

Note.—The *Dr* side of any Field contains those sums by which it has become a *Dr* to Cash or any other Account, and the *Cr* side contains those sums by which Cash or other Accounts may have become indebted to it.

* The number of the Loads of Dung here stated monthly are supposed to have been transferred from a Manure Memorandum, so simple in itself as neither to require a given Form nor Demonstration.

(9)

CONTRA,				Bolls Thrashed.	Bolls Unthrashed	Cr.			
						Fo.	L.	s.	d.
Oct.	31.	10	By the Working-Stock, ½ Acre of Tares, valued at .	...	...	3	4	10	0
			By Balance Account for Crop in Hand, ...	...	...	16	256	0	0
			By Profit and Loss for Loss,	...	...	15	48	6	11
							308	16	11

No 2, Clover-Ley,				Bolls of Seed	Loads of Manure.	No of Yokings.	Dr.			
							Fo.	L.	s.	d.
Nov.	30.		To the Working-Stock, per the O. B. this Month,			17	3	4	5	0
Dec.	31.		To the Working-Stock, per the O. B. this Month,			6	3	1	10	0
Jan.	31.		To the Working-Stock, per the O. B. this Month,			8	3	2	0	0
Feb.	28.		To the Working-Stock, per the O. B. this Month,			33	3	8	5	0
March	23.		To Farm-Store Deposit, per the O. B.	21				22	1	0
	31.		To the Working-Stock, per the O. B. this Month,			40	3	10	0	0
May	15.	4	To Cash, per the Journal, paid Rent,				2	20	0	0
June	30.		To the Working-Stock, per the O. B. this Month,				3	0	4	0
Sept.	30.		To the Working-Stock, per the O. B. this Month,			6	3	1	10	0
Oct.	7.	8	To Cash, per the Journal,				2	10	0	0
	31.		To the Working-Stock, per the O. B. this Month,			29	3	7	5	0
			To Cash, per the Journal, paid Rent,				2	20	0	0
			To Cash, paid small Charges, per the Abstract,				2	0	8	0
						139				
			To Profit and Loss gained on this Field,	...	...	...	15	85	2	0
								192	10	0

Contra,				Bolls Thrashed.	Bolls Unthrashed.	Cr.			
						Fo.	L.	s.	d.
Oct.	6.	8	By Cash, received at 21s. per Boll for . .	80	...	2	84	0	0
	31.		By Balance Account, at 26s. per Boll, . . .	...	80	16	104	0	0
			By Do. for Improvements, valued at* . . .	...	...		4	10	0
							192	10	0

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* This is going upon the supposition of taking a Farm for a Year, and receiving remuneration for the Improvements made during that time.

No 3, Being laid out in Grass, *Dr.*

				Value of Seeds.	No of Yokings.	Fo	L.	s.	d.
Nov.	1.	2	To Adam Auld, on Account of Seeds, per the Journal, . .	...	...	8	12	10	0
Dec.	31.		To the Working-Stock, per the O. B. this Month, ...	...	3½	3	0	17	6
Jan.	31.		To the Working-Stock, per the O. B. this Month, ...	...	7½	3	1	17	6
Feb.	28.		To the Working-Stock, per the O. B. this Month, . .	...	3	3	0	15	0
April	30.		To the Working-Stock, per the O. B. this Month, . .	...	17	3	4	5	0
May	15.	4	To Cash, per the Journal, paid Rent,	...	...	2	20	0	0
June	30.		To the Working-Stock, per the O. B. this Month, . .	...	4, &c.	3	1	10	0
July	31.		To the Working-Stock, per the O. B. this Month, . .	...	12, &c.	3	3	4	0
Oct.	31.	8	To Cash, per the Journal, paid Rent,	...	...		20	0	0
			To Cash, per the Abstract taken from the P. C. B.* . .	...			7	11	4
					47				
			To Profit and Loss for Gain on this Field, . . .	...	...	15	72	6	4
							144	16	8

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* P. C. B. denotes the Petty Cash-Book.

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Contra, *Cr.*

				Acres.	Stones.	Fo.	*L.*	*s.*	*d.*
June	25.	5	By Cash, per the Journal, for	...	2000	2	66	13	4
Oct.	26.	8	By Cash, per the Journal, .	...	...	2	1	10	0
	31.		By the Working-Stock, for 2d Crop, at 10s. . .	10	...		5	0	0
			By the Dairy and Feeding Stock Do. at 10s. . .	10	...		5	0	0
			By Balance-Account in one Stack, . . .	...	2000		66	13	4
							144	16	8

No 4, Fallow after Green Crop, *Dr.*

				Bolls of Seed.	Loads of Manure.	No of Yokings.	Fo.	L.	s.	d.
Dec.	31.		To the Working-Stock, per the O. B. this Month, .	...	4	8	3	2	0	0
Jan.	31.		To the Working-Stock, per the O. B. this Month, .	...	40	9	3	2	5	0
Feb.	28.		To the Working-Stock, per the O. B. this Month, .	...	20	8	3	2	0	0
April	30.		To the Working-Stock, per the O. B. this Month, .	...	...	10	3	2	10	0
May	13.		To the Farm-Store Deposit, per the O. B. for .	16¼	...	...	7	22	15	0
	15.	4	To Cash, per the Journal, paid Rent, . . .	...	...	...	2	20	0	0
	17.	4	To Cash, per the Journal, paid Seeds, . .	...	...	...	2	12	10	0
	31.		To the Working-Stock, per the O. B. this Month,	...	...	48	3	12	0	0
June	30.		To the Working-Stock, per the O. B. this Month, .	...	...	4, &c.	3	1	4	0
July	31.		To the Working-Stock, per the O. B. this Month,	...	...	6	3	1	10	0
Aug.	31.		To the Working-Stock, per the O. B. this Month, .	...	...	10, &c.	3	2	18	0
Sept.	30.		To the Working-Stock, per the O. B. this Month,	...	...	6½	3	1	12	6
Oct.	27.	8	To Cash paid Reapers, per the Journal, . .	...	...	...	2	10	0	0
	31.		To the Working-Stock, per the O. B. this Month,	...	...	14	3	3	10	0
		8	To Cash, per the Journal, paid Rent, . .	...	...	...	2	20	0	0
			To Cash, paid small Charges,	...	...	...	2	0	5	0
			To the Manure-Deposit for Dung, at 4s. for .	...	64	123½	8	12	16	0
			To Profit and Loss for Gain,	...	...	...	15	186	4	6
								316	0	0

CONTRA, *Cr.*

				Bolls Thrashed.	Bolls Unthrashed.	Fo	L.	s.	d.
Oct.	26.	8	By Cash, per the Journal, at 35s.	80	...	2	140	0	0
	31.		By Balance Account for Barley and Straw, . .	...	80	16	176	0	0
							316	0	0

No 5, BEING PASTURE,				No of Yokings.	Dr.			
					Fo.	L.	s.	d.
Dec.	31.		To the Working Stock, per the O. B. this Month, ...	10	3	2	10	0
Feb.	28.		To the Working Stock, per the O. B. this Month, ...	4	3	1	0	0
March	31.		To the Working Stock, per the O. B. this Month, ...	10	3	2	10	0
April	30.		To the Working Stock, per the O. B. this Month, ...	4	3	1	0	0
May	15.	4	To Cash, per the Journal, paid Rent, .		2	20	0	0
	31.		To the Working Stock, per the O. B. this Month, ...	3	3	0	15	0
June	30.		To the Working Stock, per the O. B. this Month, ...	13	3	3	5	0
Aug.	31.		To the Working Stock, per the O. B. this Month, ...	11	3	2	15	0
Oct.	31.		To the Working Stock, per the O. B. this Month, ...	10	3	2	10	0
		8	To Cash, per the Journal, paid Rent, .		2	20	0	0
			To Cash, per the Abstract, paid small Charges,		2	0	2	0
				65		56	7	0

CONTRA,							Cr.
				Fo	L.	s.	d.
Oct.	31.	10	By the Dairy and Feeding-Stock, per the Journal,	4	47	0	0
			By Balance-Account for Draining, &c.	16	9	7	0
					56	7	0

HOUSEHOLD DEPOSIT-ACCOUNT, *Dr.*

				Meal in B. F. P.	Barley in St. Lb.	Butter in St. Lb.	Cheese in St. Lb.	Fo	£	s.	d.
Nov.	2.	2	To Cash for Sundries, per the Journal, .	20 0 0	6 0	1 0	2 0		22	5	0
May	20.	4	To Cash, per the Journal,	20 0 0	...	...	...		17	0	0
Oct.	31.		To Profit and Loss for outcome Meal, .	0 2 0	...	...	...	15	0	9	3
				40 2 0	6 0	1 0	2 0		39	14	3

Note.—This Account on the Dr side contains various Articles supposed to be put under the Charge of a Steward or Housekeeper, and on the Cr side it contains the Disbursements made by such, and to whom. When what remains in hand is added to these Disbursements, if the Amount be more than the various Quantities on the Dr side, the difference is termed Outcome; if less, Inleak.

HOUSE EXPENSES, *Dr.*

Oct.	31.	10	To Cash, per the Journal, . . .	2	37	4	4
		10	To the Working Stock, per the Journal, for 44 Yokings, . . .	3	11	4	0
		10	To Sundries, per the Journal, . .		20	3	2
					68	11	6

Note.—House Expenses on the Dr side should contain the Money or Value of any thing taken for Family Use.

CONTRA, *Cr.*

				Meal in B. F. P.	Barley in St. Lb.	Butter in St. Lb.	Cheese in St. Lb.	Fo.	£	s.	d.
Oct.	31.	10	By the Working Stock, per the Journal, .	13 0 0	...	...	...	3	12	0	6
			By House Expenses, per the Journal, .	13 0 0	6 0	1 0	2 0	14	14	5	6
			By Balance Account, at	14 2 0	...	...	...	16	13	8	3
				40 2 0	6 0	1 0	2 0		39	14	3

CONTRA, *Cr.*

1826. Oct.	31.		By Profit and Loss, ...	15	68	11	6

PERTH BANKING COMPANY, *Dr.*

				Fo.	L.	s.	d.
Nov.	3.	2	To Cash, per the Journal, . .	2	250	0	0
Oct.	31.		To Profit and Loss for Interest, .	15	3	13	7
					253	13	7

PROFIT AND LOSS, *Dr.*

Oct.	31.		To the Working-Stock, per the Journal, .	3	3	0	0
			To Household Furniture for Tear and Wear,	5	3	0	0
			To No 1. for Loss, ...	9	48	6	11
			To House Expenses, ...	14	68	11	6
			To Stock for Net Gain, . .		387	17	6
					510	15	11

Note.—Profit and Loss contains on the Dr side every Article of Loss, and on the Cr every Article of Gain. The difference is the Net Loss or Gain on the whole Trade.

Contra, *Cr.*

				Fo.	L.	s.	d.
May	19.		By Cash, per the Journal, . .	2	150	0	0
July	3.		By Cash, per the Journal, with Interest, .	2	103	13	7
					253	13	7

Contra, *Cr.*

				Fo.	L.	s.	d.
Oct.	31.		By the Working-Stock, gained .	3	34	12	2
			By the Dairy and Feeding-Stock, gained .	4	114	3	4
			By the Farm-Store Deposit for Gain, .	7	6	13	9
			By the Manure-Deposit for Gain, . .	8	7	11	0
			By No 2. for Gain, . . .	10	85	2	0
			By No 3. for Gain, . . .	11	72	6	4
			By No 4. for Gain, . . .	12	186	4	6
			By Household-Deposit for Outcome Meal, .	14	0	9	3
			By the Perth Banking Co. for Interest, .	15	3	13	7
					510	15	11

BALANCE, *Dr.*

						Fo.	*L.*	*s.*	*d.*
1826.		For the Amount of my Effects, viz.							
Oct.	31.	To Cash for Balance in Hand, . .				2	123	9	6
		To Working-Stock valued at .	L.238	10	6				
		To do. for 40 Loads of Dung, at 4s. .	8	0	0	3	246	10	6
		To Dairy-Stock, valued at .	L.156	0	0				
		To do. for Butter unsold, 20 St. at 20s.	20	0	0				
		To do. for Cheese unsold, 40 St. at 6s. .	12	0	0				
		To do. for Dung, 17 Loads, at 4s. .	3	8	0	4	191	8	0
		To Household Furniture valued at . .					120	0	0
		To Farm-Store Deposit, Horse Corn, for 5 Bo. 1 F. at 19s. 8d. . .	5	3	0				
		To do. Hay, for 40 St. at 9d. .	1	10	0				
		To do. Barley, for 3 Bo. 1 F. at 30s, .	5	12	6				
		To do. Oats, for 1 Bo. at 25s. .	1	5	0				
		To do. Pease and Straw, for 5 Bo. at 18s.	4	10	0	7	18	0	6
		To Manure-Deposit, for 60 Bo. of Lime, at 5s.	L.15	0	0				
		To do. for 20 Bo. of Lime mixed in making 160 Loads of Compost, at 3s.	24	0	0	8	39	0	0
		To No 1. Crop in Hand of 10 Ac. Potatoes, for 600 Bo. . .	L.180	0	0				
		To No 1. Crop in Hand of 5 Ac. Turnips, at L.8, . . .	40	0	0				
		To No 1. Crop in Hand of 4½ Ac. Beans and Pease, at L.8, . .	36	0	0	9	256	0	0
		To No 2. Crop in Hand, 80 Bo. Oats and Straw, at 26s. . .	L.104	0	0				
		To No 2. for Improvements valued at .	3	0	0	10	107	0	0
		To No 3. for Hay on Hand, for 2000 St. at 8d. .				11	66	13	4
		To No 4. for the Straw of 80 Bo. thrashed, at 4s.	L.16	0	0				
		To No 4. for Barley and Straw of 80 Bo. unthrashed, at 40s. . . .	160	0	0	12	176	0	0
		To No 5. for Draining and Improvements, .				13	9	7	0
		To Household-Deposit for 14 Bo. 2 F. at 18s. 6d.				14	13	8	8
							1366	17	6

CONTRA, *Cr.*

			Fo.	*L.*	*s.*	*d.*
		By Stock for Capital, ...	1	1366	17	6

Bills

Page Jour.	No.	When Received.		From whom received.	By whom Drawn.	On whom Drawn.	Place.
1	2	Nov.	21.	Robert M'Ara,	Timothy Tillfair,	Robert M'Ara,	Crieff.
3	3	May	1.	Colin Campbell,	Matthew Graham,	John Comrie,	Stirling.
5	4	July	1.	Thos. M'Innes,	James Dow,	James Duff,	Edinr.

BILLS

Page Jour.	No.	When Accepted.		By whom drawn.	Payable to	Place.
		1826.				
1	1	Jan.	29.	William Gray,	John Reid,	Pitkellony.

RULES FOR FINDING THE CONTENTS OF WOOD AND STONE, HAY-STACKS AND DUNGHILLS, MALT-FLOORS, &c.

Rule I.—To find the superficial content of Board or Plank. Multiply the length and breadth together. If the breadth at the one end be greater than the breadth at the other, add the breadths, and multiply the length by one-half of the sum.

To find the solid content of square or unequal-sided Timber or Stone.

Rule.—Multiply the breadth, thickness, and length together.

To find the content of round Timber.

Rule.—Gird the tree in the middle with a small cord, then multiply the square of one-fifth of the girt by twice the length, and the product will be the solidity.

To find the content of tapering Timber.

Rule.—If the tree taper regularly, girt it at each end, and take half of the sum for the mean, or divide it into two or more pieces, and measure them separately. In oak $\frac{1}{10}$ or $\frac{1}{12}$ of the girt is deducted as an allowance for the bark, if not taken off before it is measured.

To find the number of stones contained in a Hay-stack by measurement.

Rule.—Take the height of the stack from the ground to the eves, then take

RECEIVABLE.

Date.		Term.	Payable in	Due.		Sum.			When and		how disposed of.	Page Jour.
						L.	s.	d.				
Nov.	15.	40 Days.	Perth.	Dec.	25.	88	16	0	Dec.	25.	Discd. at P. B.	4
April	26.	2 Months.	Glasgow.	June	26.	50	10	6	June	26.	In Cash.	5
June	20.	40 Days.	Edinr.	July	31.	10	12	6	July	3.	Discd. at R. B.	2

PAYABLE.

Date.		Term.	Payable in	Due.		Sum.			When and		To whom paid	Page Jour.
						L.	s.	d.				
Jan.	12.	3 Months.	Dundee.	April	15.	110	10	8	April	14.	John Reid.	2

the height from the eves to the top; of this last height add ⅓ to the height taken from the ground to the eves. Multiply the number of feet in length by the number of feet in breadth, and that product by the number of feet in height; divide the amount by 27, gives cubic yards, which you are to multiply by the number of stones supposed to be in a cubic yard, the product thus found will be the weight in stones. Hay in ricks is seldom more than 5 stones to a cubic yard, in new-made stacks from 6 to 8 stones, according to their size and the time they have been made; large old stacks of hay will weigh 9 stones in a cubic yard.

To find the content of Dunghills.—Let them be formed into a couch (which is the usual way before exposing them to sale), then take the length, breadth, and depth, which multiply together; divide their product by 27, which gives the cubic yards.

Note.—In cases where the Dunghill is unequal in breadth or in depth. Take the breadth and depth at as many places as you may think necessary; divide the sum of each by the number of the times it was taken, the quotient will be the mean breadth or depth, with which and the length find the solidity as before directed.

To find by the gauge the number of imperial bushels of any kind of grain lying in a couch or floor. When even in the length, depth, and breadth, take the dimensions in inches. Then multiply the length by the breadth and depth; divide the product by 2218, the cubic inches contained in an *imperial bushel.* The quotient will be the answer required in imperial bushels. When the grain is lying in an irregular state proceed as directed in the note relative to dunghills, but continue to divide by 2218.

MONTHLY STATE of LABOUR as kept by Mr KINROSS, Land-Steward to Major MORAY of Ardoch.

LABOURERS' NAMES FOR OCTOBER, 1826.	2 M.	3 T.	4 W.	5 Th.	6 Fr.	7 Sat.	9 M.	10 T.	11 W.	12 Th.	13 Fr.	14 Sat.	16 M.	17 T.	18 W.	19 Th.	20 Fr.	21 Sat.	23 M.	24 T.	25 W.	26 Th.	27 Fr.	28 Sat.	30 M.	31 T.	No of Days.	Rate per Day.	TOTAL AMOUNT. £ s. d.
Thomas Steel,	1	1		1	½	1	½	1	1	1	1	1	1	1	¼	1	1	1	1	1	1	1		1	1	1	22¼	2s.	2 4 6
John Flint,			1	1		1	1	1		1	1	½	1	1	1	½	1	1	1	1	1	1	1	¼	1	¼	19½	1s. 6d.	1 9 3
&c. &c																													

MANAGEMENT of ARABLE LAND.

					PREPARATION.											
					PLOUGHING, HARROWING, &c.				MANURE.				SOWING SEED.			
No of Years.	What Year.	What Crop.	Acres.	When Begun	No of Men.	Days.	Rate per Day.	Amount. £ s. d.	Sort.	Quantity.	Price.	Amount. £ s. d.	Sort.	Quantity.	Price.	Amount. £ s. d.

ACCOUNT of CROPS.

SORT.	THRASHED			BOUGHT.			SOLD.			SOWN.			CONSUMED.			BY WHOM CONSUMED.				WHERE SOWN.			GROUND.	
	Quarters.	Bushels.	£ s. d.	Quarters.	Bushels.	£ s. d.	Quarters.	Bushels.	£ s. d.	Quarters.	Bushels.	£ s. d.	Quarters.	Bushels.	£ s. d.	Sort.	By Whom.	Quantity.	£ s. d.	No of Field.	Quantity.	£ s. d.	Ac. R. P.	£ s. d.
Wheat,																								
Oats,																								
Potatoes,																								
&c.																								

SYNOPTICAL VIEW

OF THE

NEW WEIGHTS AND MEASURES.

An Act of Parliament was passed on the 17th of June, 1824, for ascertaining and establishing uniformity of weights and measures, and another act for amending the former was passed on the 31st of March, 1825.

In these acts the fundamental standard of all extension and capacity is declared to be "The straight line, or distance between the centres of the two points in the gold studs fixed in the straight brass rod, now in the custody of the clerk of the House of Commons, whereon the words and figures, '*Standard Yard*, 1760,' are engraved." This distance, when the brass is at the temperature of 62 degrees of Fahrenheit's thermometer, is denominated the ***Imperial Standard Yard***, and the 36th part of it the ***Imperial Standard Inch***, from which all other measures of length, superfices, and solidity, are to be derived.

The standard of weight is declared to be "the brass weight of one pound troy, made in the year 1758, now in the custody of the clerk of the House of Commons, which is to be denominated the *Imperial Standard Troy Pound;* and the 5760th part of this pound is to be the *Standard Grain;* and the pound avoirdupois is to weigh 7000 such grains; and from these all other weights are to be derived."

The standard measure of *Capacity*, both for liquid and dry goods, is to be the gallon,—a measure made of brass, containing 10 pounds, avoirdupois weight, of distilled water, weighed in air, at the temperature of 62 degrees of Fahrenheit's thermometer, the barometer being at 30 inches; and it is declared, that 10 pounds avoirdupois, of pure or rain water, are equal to 277.274 cubic inches. This measure is denominated the *Imperial Standard Gallon*, and all other measures of capacity are to be regulated by it; and all distinctions of gallons for wine, ale, and corn, are abolished.

By Act of Parliament it is declared, that all contracts, bargains, sales, and dealings, for any work to be done, or for any goods, wares, merchandize, or other thing to be sold, delivered, done, or agreed for, by weight or measure, where no special agreement shall be made to the contrary, shall be held to be made according to the new standard of weights and measures; and in all cases where any special agreement shall be made, with reference to any weight or measure established by local custom, the ratio or proportion which such local weight or measure shall bear to the standard weight or measure, *shall be expressed, declared, and specified, in such agreement*, or otherwise such agreement shall be *null and void.* And it is also enacted, that it shall be lawful for persons to buy and sell goods by weight or measure established by local custom, or founded on special agreement, *provided* that the ratio or proportion such weights or measures bear to the standard weights or measures *be painted or marked thereon.*

Agreeably to these acts I shall now give the Tables of Measure and Weight with which the agriculturist is most directly connected.

LINEAL MEASURE.

12 lines = 1 inch, I. S.
12 inches = 1 foot, I. S.
3 feet = 1 yard, I. S.
5½ yards = 1 pole, I. S.
40 poles = 1 furlong, I. S.
8 furlongs = 1 mile, I. S. = 1760 yards.

SQUARE MEASURE.

144 square inches, I. S. = 1 square foot, I. S.
9 square feet, I. S. = 1 square yard, I. S.
30¼ square yards, I. S. = 1 square pole, I. S.
40 perches, I. S. = 1 rood, I. S.
4 roods, = 1 acre, I. S.

SQUARE OR SUPERFICIAL MEASURE.

144 square inches, I.S. *s. in.*	= 1 square foot, I.S. marked	*s. f.*
9 square feet	= 1 square yard, I.S.	*s. yd.*
30¼ square yards	= 1 square pole or perch, I.S.	*s. p.*
40 perches	= 1 rood, I.S.	*r.*
4 roods	= 1 acre, I.S.	*a.*
640 acres	= 1 square mile,	*s. m.*

Note 1.—36 square yards are termed a rood of building, and 100 square feet are called a square of flooring.

The dimensions of deals, land, and other superfices, are taken by lineal measure, but the contents are calculated by square measure.

Note 2.—10,000 square links make 1 square chain, and 10 square chains make 1 acre.

CUBIC OR SOLID MEASURE.

1728 cubic inches, I.S. *c. in.*	= 1 cubic foot, I.S. *c. f.*
27 cubic feet	= 1 cubic yard, I.S. *c. y.*
40 cubic feet of rough or 50 cubic feet of hewn timber	= 1 load.
42 cubic feet	= 1 ton of shipping.

The dimensions of timber, stone, marble, excavations, and of all works which have length, breadth, and thickness, are taken by lineal measure; but the contents are calculated by cubic measure.

TROY OR GOLDSMITHS' WEIGHT.

24 grains, I.S. *gr.*	= 1 pennyweight, I.S. marked	*dwt.*
20 pennyweights	= 1 ounce, I.S.	*oz.*
12 ounces	= 1 pound, I.S. = 5760 gr.	*lb.*

AVOIRDUPOIS WEIGHT.

16 drams, I.S. *dr.*	= 1 ounce, I.S. marked	*oz.*	= 437½ grs.
16 ounces, I.S.	= 1 pound, I.S.	*lb.*	= 7000
14 pounds	= 1 stone,	*st.*	
28 pounds	= 1 quarter,	*qr.*	
4 quarters, 112 lbs.	= 1 hundred weight,	*cwt.*	
20 hundred weight	= 1 ton,	*T.*	

This weight is to be used for all purposes, except those mentioned under troy apothecaries', and diamond weights.

Note.—The avoirdupois pound is heavier than the troy pound by 1240 grains. 144 lbs. avoirdupois are equal to 175 lbs. troy.

MEASURE OF CAPACITY.

			Cubic Inches.
	1 pint, marked	*pt.* =	34.6592
2 pints, I.S.	= 1 quart, I.S.	*qt.* =	69.3185
4 quarts	= 1 gallon, I.S.	*g.* =	277.2738
2 gallons	= 1 peck, I.S.	*p.* =	554.5477
4 pecks	= 1 bushel, I.S.	*b.* =	2218.1907
8 bushels	= 1 quarter, I.S.	*qr.* =	17745.5260

This measure is now to be used for all liquids, and for all dry goods not measured by heaped measure. 100 gallons of this measure are equal to 120 wine gallons, or to 98.3 ale gallons, or to 103.12 gallons dry measure; and the Winchester bushel is equal to 7.758 standard gallons, or to .9697 standard bushels.

HEAPED MEASURE, OR COAL MEASURE.

				Cubic Inches.
		1 heaped gallon, I.S.	=	351.936
2 heaped gallons	=	1 heaped peck, I.S.	=	703.872
4 heaped pecks	=	1 heaped bushel, I.S.	=	2815.486
3 heaped bushels	=	1 sack, I.S.	=	8446.458
12 sacks	=	1 chaldron, I.S.	=	101357.498

The diameter of the exterior brim of the bushel measure being 19½ inches, and the height of the cone or heap above the brim being at least 6 inches, the content of the heap is at least 597.2953 cubic inches, which, added to the content of the bushel 2218.1907, &c. makes the heaped bushel to be at least 2815.486 cubic inches; and the contents of the other denominations are calculated in proportion to this.

This measure is used for lime, coals, culm, fish, potatoes, fruit, and all goods commonly sold by heaped measure.

APOTHECARIES' WEIGHT.

20 grains, I.S. = 1 scruple, marked ℈
3 scruples = 1 dram, ʒ
8 drams = 1 ounce, I.S. ℥
12 ounces = 1 pound, I.S. *℔*.

FLOUR AND BREAD WEIGHT.

A peck-loaf weighs	17 lb.	6 oz. avoirdupois.
A half-peck do.	8	11
A quarter loaf	4	5½

Note.—A peck of flour was formerly 14 lbs.; but the peck being now enlarged, the standard peck ought to weigh 14.44 lb., or 14½ lbs.; and the standard bushel 57.76 lbs., or 57¾ lbs.—5 bushels make a sack, which ought to weigh 288.8 lbs.

HAY AND STRAW WEIGHT.

36 lbs. avoirdupois of straw = 1 truss, marked *tr.*
56 lbs. ditto of old hay = 1 truss,
60 lbs. ditto of new hay = 1 truss,
36 trusses = 1 load, *lo.*

All hay is reckoned old, except that which is sold between the beginning of June and the end of August, of that year's growth.

A load of straw is 11 cwt. and 64 lb.; a load of old hay is 18 cwt., and a load of new hay 19 cwt. 32 lbs.

PART II.

CONSISTING OF

CLEAR AND COMPREHENSIVE OBSERVATIONS,

SELECTED FROM THE

MOST CELEBRATED AND EXPERIENCED AGRICULTURISTS IN THE KINGDOM,

RESPECTING

THE ORIGIN AND PROGRESS OF AGRICULTURE—ITS PRESENT STATE OF IMPROVEMENT—THE CULTURE OF PARTICULAR SOILS—THE CULTURE OF GRAIN OF ALL KINDS—THE CULTURE OF PLANTS OF WHICH THE ROOT IS THE PRINCIPAL PART—THE CULTURE OF PLANTS OF WHICH THE LEAVES AND THE STALK ARE THE PRINCIPAL PART—WITH A CATEGORY OF THE DUTIES, GENERAL AND PARTICULAR, OF A LAND-STEWARD—THE FORM OF A RENTAL-BOOK, &c. &c.

CHAPTER I.

SECTION I.

OF THE ORIGIN AND PROGRESS OF AGRICULTURE.

Agriculture is of such antiquity as to be coeval with the first formation of society. Accordingly, in the Sacred Volume of Inspiration, we are informed, that our First Parents had no sooner fallen from their primeval state, than they were sent to cultivate the ground whence they were taken. Cain, their elder son, was a tiller of the soil; and of Noah it is recorded that he was a husbandman. When Elijah the prophet called Elisha the son of Shaphat, he was ploughing with twelve yoke of oxen before him. Thus we learn from Scripture, as we will afterwards see from history, that Agriculture was encouraged by the wisest nations, and practised by the best and greatest men of antiquity.

The history of the Egyptians, Babylonians, Phœnicians, and many other ancient nations, informs us, that they were well acquainted with Agriculture. The pretensions of the Chinese go still farther back; they claim, and not without some foundation, the precedence of all the countries above mentioned. Husbandry, without question, flourished in China at a very early period, and was then deemed of such importance, and held in such respect, as to claim the first, and indeed the principal attention of the government. The emperors, in order to impress all orders of the community with proper ideas of its importance, condescended, once a year, to hold the plough in presence of their chief nobility, the great officers of state, and the whole inhabitants of the capital,—a custom that is still kept up, and deserves to be imitated by all sovereigns. At a period so remote as the present, and without the means of correct information, it is a difficult task to ascertain to which of these countries the preference is due. The most probable conjecture is, that each of them is entitled to a share; and that the agricultural knowledge of which they were then in possession, in place of belonging exclusively to any one, was the common attainment of the whole.

Of the slow progress of Agriculture, and the difficulties encountered in the first attempts to cultivate the earth, we may form some idea. The instruments originally made use of were undoubtedly very rude, and such as could be managed only by the hand, perhaps similar to our spade and hoe. The want of metals, together with the ignorance of their use, would occasion these instruments to be constructed of hard wood; from which state there can be little doubt they went through all the different gradations, from the coarsest wooden shovel to the plough, which at a very early period was used by the Egyptians, Babylonians, Phœnicians, and Greeks, and was well known in Palestine, as has already been hinted. The other instruments used in Agriculture would follow as a matter of course; these in their original state must also have been extremely rude, and much time and great labour required before men were able to perfect what was necessary for harrowing, thrashing, and separating the grain from the chaff, and, lastly, of grinding it into meal. It would appear that Agriculture had proceeded considerably to the westward before it arrived at much perfection.

Italy, and the northern coasts of Africa, were for ages the favourite seats of cultivation, and the granary of the Roman empire; and while that people were extending their dominion almost to the limits of the then known world, the bread-corn, and almost every other article of subsistence, necessary for the support of their numerous legions, were drawn from these parts. The perusal of Virgil's Georgics affords an undeniable proof of the perfection of the Italian husbandry. In that interesting work, the wheel-plough, the harrow, the flail, the scythe, the reaping-hook, with almost every other instrument now in use, are accurately described. To those who are capable of tracing effects to their proper causes, the advantages produced by the Roman conquests will be strikingly obvious; and though at that time their legions must have been considered as the scourges of the human race by the people amongst whom they came, the lapse of ages, and the amelioration of the human condition, enables us to view them in a different light. The ploughman of Italy, when he became a soldier, and was sent into Gaul or Britain, would neither forget his original employment, nor the comfort he would derive from practising it in the country where he was stationed. The troops kept by Rome in the distant provinces were seldom relieved by others from Italy,—a circumstance extremely favourable, not only to the introduction, but the perfecting of Agriculture. The first attempts would no doubt be made to cultivate the hardiest of the Italian plants; a conviction that these could be matured in Britain would lead them to introduce others more delicate; the natives of the country, struck with these advantages, would soon learn to imitate an example that promised so materially to better their situation. The same thing would happen with regard to the other arts, which, by the time the Roman forces were finally withdrawn from Britain, had made such progress as to place the country in a situation enviable, when compared to what it was before the Conquest; from which era we may with justice date the introduction of every thing connected either with the comfort or the elegance of life.—For the principal part of the foregoing observations, we are indebted to the first volume of the Farmer's Magazine,—a work which should form a part of every farmer's library.

As it would be foreign to the object of the present abridgment to trace the progress of Agriculture through the four quarters of the globe, or *even* through the various countries and climates of Europe, I shall now give a brief outline of its history as connected with Britain in general, and Scotland in particular, as clearly stated in Loudon's Encyclopædia of Agriculture,—a work published so late as 1825,—which, from the matter it contains, and the manner of its arrangement, lays claim to being the most complete body of Agriculture hitherto submitted to the public. By it we are informed that Britain, on being quitted by the Romans, was invaded by the Saxons, a ferocious and ignorant people, by whom Agriculture and all other civilized arts were neglected. In the eleventh century, when the Saxons had amalgamated with the natives, and constituted the main body of the English nation, the country was again invaded by the Normans, a much more civilized race, who introduced several improvements. These two events form two distinct periods in the history of British Agriculture, and two others bring it down to the seventeenth century.

At the arrival of the Anglo-Saxons this island abounded in numerous flocks and herds, which these conquerors seized and pastured for their own use, having derived their origin and manners from the ancient Germans, who were not much addicted to Agriculture, but depended chiefly on their flocks and herds for subsistence. These restless and haughty warriors esteemed the cultivation of their lands too ignoble and laborious an employment for themselves, and were even at pains to contrive laws to prevent their contracting a taste for Agriculture, lest it should render them less fond of arms and warlike expeditions.

The rent of land in these times was established by law, and not by the owners of the land. By the laws of Ina, king of the West Saxons, who flourished in the end of the seventh and beginning of the eighth century, a farm, consisting of ten hides or plough-lands, was to pay the following rent, viz. Ten casks of honey, three hundred loaves of bread, twelve casks of strong ale, thirty casks of small ale, two oxen, ten wethers, ten geese, twenty hens, ten cheeses, one cask of butter, five salmon, twenty pounds of forage, and one hundred eels. Very little is known of the implements or operations of husbandry during this period. That the conquest of England by the Normans contributed to the improvement of Agriculture in Britain, is undeniable, as many of the Norman barons are celebrated in history for their skill in improving their lands. The implements of husbandry in this period were partly of the same kind now in use, though less perfect in their construction.

Subjoined are a few remarks respecting the ancient state of the Scotch lease, which it may be amusing to compare with the forms now in use.

Ancient State of the Scotch Lease.

The connexion between landlord and tenant has been supposed by some to have gradually improved, from that between master and slave, to a state of independence and of mutual interest in the soil. Lord Kames says, "Lands originally were occupied by bondmen, who were the property of the landlord, and consequently were not capable to hold any property of their own," &c. And we have a clear account of such men in the Regiam Majestatem, b. 2, c. 2; and in the Quon. Attach. c. 56. sect. 5, "There is sundrie kinds of nativity or bondage, for some are born bondmen, or natives of their guidsher and grandsher, quhom the Lord may challenge to be his natural natives, be names of their progenitors, gif they be known," &c.

It is beyond doubt true that slavery in this country once existed; but it is equally certain that there were also at the same period freemen, by whom the land was laboured.

In the laws of King William (who began his reign in 1165), c. 9th is entitled "*The Law of Mills.*" It is there ordered, sect. 3d, "ane husbandman and ane farmer sall gif the thritten veschel of their lands of service, and mairover of ane chalder, ane firlot, for knaveship." Sect. 7th declares, "gif anie man, in anie barony, takes land to ane certain terme for ferme, and after the terme will flit and remove, he sall have his seed free fre multure," &c. And in sect. 9th, "gif a farmer renounces and gives up his land to his maister," &c. It is evident from these passages that there were a class of men occupying lands and mills for rent, entitled to the produce thereof, and holding by a tenure which enabled them to renounce their possession at pleasure.

In every case, where any notice is taken of the farmer in our ancient laws, we find him in a similar state to which he now is, possessing his lands under lease, although at a remote period without any written title. We must therefore conceive the landholders or barons to have given possession of their baronies to be occupied by feuars and tenants, to be held by them *ward*, that is, for military service, or for payment of a certain feu-duty, or to be held for a certain period, or at the will of the proprietor, for payment of a rent.

When the rights of parties began to be expressed in writing, the feu-holder, as well as the ward-holder, obtained a charter on which infeftment was taken. The lease also was reduced into writing, and took the form of the charter, with this difference, that its endurance was limited. The rental, when it was given to a man and his heirs, or in perpetuity, was a feu-right; when given simply to the rentaller, it was a liferent lease,—Stair, b. 2d, tit. 9th, sect. 5th, says, "Of old the lease was granted without any mutual engagement on the tacksman like unto a charter." At this time, therefore, the connexion between landlord and tenant appears to have been considered as chiefly favourable for the tenant, and the written evidence of it intended for his security. As ancient manners gave way, and the influence of commerce and agriculture increased, the landlord no longer felt that dependence on the tenant which secured him in his right; lands were consequently set to those who offered the highest rent, and the law, in place of securing the tenant merely, as heretofore, came now to give security to the landlord also; and in this manner the lease came to assume the form of a mutual contract binding on both parties.

At this period the tenant's right must frequently have come in competition with that of a purchaser; and, the lease being a mere personal obligation, could not compete with the purchaser's real right constituted by charter and sasine; and it appears that it became necessary, in order to put the two rights on the same footing, that sasine was taken on the lease. This brings the history of the lease to the period at which that contract begins to be recognized by the authorities of our law.

The lease at this time having no effect against a purchaser possessing a feudal title, it was liable to destruction by a sale of the lands. This was then provided against by the act 1449, c. 18: " It is ordained, for the safetie and favour of the puir people that labouris the ground, that they, and all vtheris that hes taken, or sall take, landes in time to come fra Lordis, and hes termes and zeires thereof, that suppose the Lordis sell or annaly that land or landes, the takers sall remaine with their tacks unto the ischue of their termes, quhai handes that euer thay landes cum to, for sicklike maill as they took them for."

It would appear that this act was intended to apply merely to the agricultural lease, being for the safety and favour of the poor people *that labour the ground.* But Lord Stair, b. 2d, tit. 9th, sect. 2d, says, " that the act operates in favour of all tacksmen, *whether they be labourers of the ground or not,* whereby tacks are now become the most ordinary and important rights."

It is now decided law, that tacks of houses within burgh, and any lease under which the tenant possesses lands, houses, mills, fishings, collieries, or whatever is *fundo annexum,* is entitled to the protection of the statute.

In order that the lease may enjoy the benefit of the act, it must be in writing. This arises from the nature of the right, being a contract affecting land; and no right affecting land, by the law of Scotland, can be constituted without writing, the parties, where it is wanting, being entitled to resile.

Agriculture in Scotland was at a low ebb during the thirteenth, fourteenth, and fifteenth centuries, on account of the long and ruinous wars in which the country was engaged; the civil dissensions, and even anarchy, which prevailed until a late period of the sixteenth century, operated as a harsh check on every improvement in Agriculture, especially on the estates of the barons, where the profession of a soldier was regarded of more importance than that of a cultivator of the ground.

The seventeenth century is distinguished by some important improvements, among which are the introduction of clovers and turnips in England, of hedges in Scotland

and Ireland, and the execution of extensive embankments and drainage. In Scotland the south-eastern counties were the earliest improved, and yet in 1660 their condition seems to have been very wretched. Ray, who made a tour along the eastern coast in that year, says,—"We observed little or no fallow-grounds in Scotland; some ley-ground we saw which they manured with sea-wreck. The men seemed to be very lazy, and may be very frequently seen to plough in their cloaks. They have neither good bread, cheese, nor drink. The ordinary country houses are pitiful cots, built with stones, and covered with turfs, having in them but one room; many of them no chimneys; the windows very small holes, and not glazed. The ground in the valleys and plains bears very good oats and barley, but rarely wheat and rye." Yet in the seventeenth century were those laws made which paved the way for the present improved system of Agriculture. By statute 1633, landholders were enabled to have their tithes valued, and to buy them either at nine or at six years' purchase, according to the value of the property. The statute 1685, conferring on landlords a power to entail their estates, was indeed of a very different tendency in regard to its effects on Agriculture. But the two acts in 1695, for the division of commons and separation of intermixed properties, have facilitated, in an eminent degree, the progress of improvement. As it is not the object of the present sketch to trace the political history of Agriculture, we shall now resume its professional history, and state a few of the imperfections of Scotch husbandry, as pointed out by Lord Kames about the middle of the last century. The learned Judge represents our instruments of husbandry as sadly imperfect; our draft-horses as miserable creatures, without strength or mettle; our oxen scarcely able to support their own weight, and ten going in a plough led on by two horses; the execrable husbandry of outfield and infield generally established; the ridges high and broad; in fact, enormous masses of accumulated earth, that would not admit of cross-ploughing or of proper cultivation; shallow ploughing universal; ribbing, by which half the land was left untilled, a general practice; summer-fallow, though common in three or four counties, yet only commencing in others; over the greater part of Scotland a continual struggle for superiority between corn and weeds; the roller almost unknown; no harrowing before sowing, and the seed thrown into rough uneven ground, where the half of it was buried; imperfect rotations of crops; little skill in harvesting; no branch of husbandry less understood than manure; potatoes propagated in lazy beds; swine but little attended to; and very few farms in Scotland justly proportioned to the skill and ability of the tenant.—*Kames's Gentleman Farmer.*

SECTION II.

PRESENT STATE OF IMPROVEMENT.

What a contrast to the description given of the husbandry of Scotland by Sir John Sinclair, Bart., in 1812! At that time, to use his own language, he states,—" That the foundation of improved Agriculture is certainly laid in the best-cultivated districts of Scotland, in as great perfection as it possibly can be in any country. The farms are usually of a proper size; the farmers in general have capitals adequate to their cultivation; their leases are commonly of such duration as to encourage judicious expenditure in the improvements of their lands, with the prospect of an adequate return; the covenants contained in these leases are well calculated to promote improvement, a liberal system of connexion being established by them between the landlord and tenant. The farmers of Scotland have established it as a principle, that the position of a farm-house and offices ought to make a material difference in the rent of a farm. They have ascertained the best construction of farm-houses and offices, uniting economy with convenience; they are fully aware of the importance of draining, and have practised it with success; they have ascertained, that, by the introduction of good roads, the value of a country will be greatly increased; their instruments of husbandry are all well constructed; their live-stock are valuable, well calculated for their soil and climate. They have ascertained the proper length, breadth, and shape of ridges; in the use of putrescent, and still more of calcareous manures, they have made great improvements; they have proved, beyond the possibility of a doubt, the advantage of deep ploughing; they have completely ascertained the advantages of summer-fallowing, where soils are either of a clayey nature, or are incumbent on wet subsoils; they have brought the cleaning and thrashing of grain to the highest perfection."

It is noticed by Loudon, that, " since the peace of 1815, Agriculture has sustained a severe shock from the fall of prices, occasioned by the lessened circulation of currency, in which shock many hundreds of farmers lost all their capital; but that, after seven or eight years of severe suffering, both by landlords and tenants, things have now assumed a more stationary condition, and both farmers and landlords are beginning gradually to recover themselves."—I trust that many of my readers will agree with me in concluding this brief outline in the statement of Sir Joseph Banks to his friend, Sir John Sinclair, Bart., viz. that "Agriculture has derived, is deriving, and will derive, more benefit from Scotch industry and skill, than has been accumulated since the days when Adam first wielded the spade."

SECTION III.

OF THE CULTURE OF PARTICULAR SOILS.

We shall introduce this subject with a few remarks taken from an Account of the Husbandry of Scotland, published by Sir John Sinclair, Bart., in 1812,—a very valuable work to which we have already referred. On the subject of soils the learned Baronet states,—"That they may be considered under the two great divisions of strong and light lands, though there are many intermediate shades between them. The crops to be cultivated in each, as well as the mode of management, must differ materially; for instance, it is a general rule, that wheat ought to be the basis of profitable husbandry in strong, and barley in light lands. In the latter species of soil there is no difficulty in keeping the land free from weeds, by means of fallow-crops; in the former, a summer-fallow once every six years, is considered, by all the most intelligent farmers of Scotland, as essentially necessary to keep the land clean. The importance of climate to a farmer needs not be dwelt on, as, without attention to this, no profitable system can be laid down by any occupier of land."

The Rev. Adam Dickson, a learned and judicious writer on Agriculture, who published in 1769, when treating of soils with respect to tillage, divides them into the following classes:—"Stiff and light, wet and dry, deep and shallow." The same author, when treating of soils with respect to the application of manures, makes the following division of the soils most common in Scotland:—"The black loamy soil, the clay, the sandy, and the mossy. Of all these there are great varieties, arising from the different proportions of that kind of earth from which they take their names. Hence it is difficult to determine to what class some soils belong, as it is difficult to know what kind of earth prevails most in them."

From this author we shall take a brief account of each of these in their order.

OF LOAM he says,—It is probable that it is not an original soil, but the earth of rotten vegetables. The qualities of loam are as follow:—When allowed to rest, its parts acquire a degree of cohesion. In this it differs from sand, and has a resemblance to clay, but never becomes so tough and hard. When turned up and exposed to the air, it becomes free and open. In this it differs from clay, and has a resemblance to sand, but does not separate into such small particles. When a large quantity of water falls upon this soil, it retains a proper share of it, and allows the rest easily to run off. Loam, then, in some respects, is a medium between clay and sand, and in some respects it differs from both. The soil compounded of loam is found to be the most fruitful of all others, as it possesses the power of attracting food from the air; a large pasture, and the power of dissolving the vegetable food, and fitting it for entering the roots of plants. The soil in which there is a great proportion of loam needs very little manure. It may be kept in good heart by proper tillage and a good scheme of management. There is, however, but a small quantity of this kind. The generality of what goes under the name of loamy soil requires manure, and no kind of manure is improper for it. Dung, soot, sea-weed, vegetables, and the other manures of this kind, add to its vegetable food; and lime, ashes, and marles, find vegetable food to work upon.

OF CLAY SOILS.—There are different kinds; the richest kind consists of clay and loam. To know the nature of this soil, it is necessary to consider the qualities of clay, which are as follows:—

Clay is a very solid body, its parts adhere very firmly together. It does not easily admit water; it is capable of receiving a large quantity; when it receives water it swells but little, and does not easily part with it; in these respects it differs from loam and sand. It is much exposed to injuries from the weather, and must suffer greatly from excessive drought or rain. Experience confirms the truth of these things; for it is observed, that clay soils are actually more uncertain than loamy soils, and the crops upon them more precarious, more easily damaged by drought or rain. It may not be improper to observe, that where clay lands are dry situated, they suffer little more from drought or rain than loamy soils; hence it must be of the greatest importance to keep clay land as dry as possible during the winter. It is allowed that clay contains oil, but does not ferment with acids. It would seem, then, that the clay soil has the vegetable food in greater plenty than it has the power of dissolving it; and, therefore, that lime, ashes, or marle, are the most proper manures for it, as they tend to dissolve its oils and render them fit for entering the roots of plants. They likewise communicate to it their absorbent qualities, by which they open its pores and benefits its pasture. Shell-marle is a proper manure for poor as well as for rich clays; but, if it cannot be obtained, a mixture of lime and dung, or of dung and marle, will serve in its place.

Of the Sandy Soils.—There are several kinds, the best of which is a mixture of sand and loam. Sand itself is of two different kinds; the one consists of small particles of flint, the other consists of small broken shells; often these two are mixed together, which may be called a third sort. The qualities of sand of flint are as follows:—It easily receives water, and it easily parts with it; rain makes it firmer and less in bulk; the particles of it do not adhere together, and it is susceptible of greater heat from the sun than any thing of which other soils are compounded. It appears then that the qualities of this kind of sand are directly opposite to those of clay. The sand of shells has nearly the same qualities with those mentioned, but differs from the other in these things following:—The sand of shells, like shell-marle, attracts and ferments with acids, is capable of being dissolved, and contains oils. The sandy soil is more unfit for nourishing plants than the soil of clay; as it easily parts with water, there will not be a sufficient quantity in a dry season to promote vegetation; as the particles of it do not adhere together, it will not be able to support vegetables that have but few roots and grow tall.

It may be observed, particularly with respect to the soil compounded of sand of flint, that, as it contains no oils, it must have but little vegetable food; and, as it has no absorbent quality, it will receive but a small supply from the air; and it may be observed, particularly with respect to the soil compounded of sand of shells, that, as the shells contain oil, and as they dissolve gradually, though slowly, it has naturally a larger quantity of vegetable food than the other; and, as it attracts and ferments with acids, it receives also a greater supply from the air. The defects of the sandy soil point out the manures most proper for it.

The manures most proper for the soil compounded of sand of flint are such as make it retain water, render it firmer, and supply it with vegetable food. Clay will help to make it retain water, and make it firmer; but clay contains but little vegetable food. Dung will supply it with vegetable food, but will not render it firmer, nor make it retain water. Moss will help it to retain water, and supply it with vegetable food, but will not make it firmer. A mixture of clay and dung, or of clay and moss, seems to be the most proper manure, and best fitted for supplying its wants. A mixture of either of these will also be a proper manure for soil compounded of sand of shells.

Of the Mossy Soil.—Moss is commonly ranked in the class of vegetables. It is not very certain whether the vegetables are alive or dead. The kind of moss most common has very little firmness, either when wet or dry, and it is obvious is not alive.

The qualities of moss are as follows:—It has oil and salt in its composition, as all vegetables have; it does not easily putrefy, and it prevents other bodies from putrefaction; it easily receives water, swells with it like a sponge, retains a large quantity, and does not easily part with it. To render the mossy soil fit for nourishing vegetables, the moss in it must be reduced to a state of putrefaction. The manures that ferment most violently with acids seem to be the most proper for this end. Of these the clay and stone marles seem to be the most proper, because they will not only raise a violent fermentation, but will also fill up its pores, and make it more solid, by which it is rendered more proper for resisting the entrance of water.

It is necessary to observe, that if the moss is deep, or has not a solid bottom, lime is not proper, because, by its weight, it will soon penetrate beyond the reach of the plough. It is commonly observed, that the frequent ploughing of this soil makes it run to chickenwort and other creeping weeds; hence it is become almost a general practice to plough it but seldom, which is found to answer better.—*Dickson's Agriculture, vol. I.*

Much has been stated by late writers relative to the variety of soils, as well as the nourishing juices which they contain, such as *salts*, oils, mucilages, &c. &c.; respecting which Brown's Treatise on Rural Affairs, and the more scientific and chemical works of Sir Humphry Davy, may be consulted with advantage.

SECTION IV.

OF THE GRAIN PROPER FOR DIFFERENT SOILS.

HAVING given these statements respecting the nature and qualities of different soils, I shall next give a brief outline of the different sorts of grain proper for the different soils, as they are stated by Richard Parkinson, in his 1st vol. of The Experienced Farmer, in which he says, "Wheat will grow on almost any soil with proper care and management, but it prospers best on a clay, loam, or warp.

"BARLEY thrives most on sandy or gravelly soils, or limestone; yet a clay soil, if well managed, will produce the best barley for making malt. Barley will not thrive on moorland, nor peat-earth, nor in a low and wet situation.

"OATS will grow upon any soil, but bear the heaviest and finest crops upon gravel or sand. Fen-lands will produce abundant crops of oats, as also will in general all low land if of a good quality. Limestone-land seldom produces large crops of oats, neither is a stiff clay favourable to this grain.

"BEANS succeed best on a clay soil, loam, or warp. With manure and proper management they will grow on any soil, but on few so well as on clay.

"PEASE will grow and prosper on almost any soil; they will produce abundantly with less manure than any other grain.

"TARES will thrive well on all soils; they grow without cultivation on poor soils of a dry nature.

"VETCHES have become a very useful crop; as they can be sown at almost all seasons, they are recommended instead of a fallow on all clay land where a fallow is thought necessary to prepare for wheat, and which is not clean enough to receive clover in that case, as the land should be kept covered instantly after it is cleaned, there being nothing so injurious as its continuing exposed when in clods."

SECTION V.

ROTATION OF CROPS.

I SHALL now state the opinions of the same experienced author regarding the proper rotation of crops suited to these various soils, which are as follows:—

On a Clay Soil.—First year, a pea-fallow, drilled and manured. Second year, wheat. Third year, beans drilled and manured. Fourth year, either wheat or barley. Fifth year, clover with a top-dressing. Sixth year, wheat. In this rotation, by manuring once in two years, each crop may be expected to turn out a good one.

On cold Clay Land.—If in sward, first pare and burn, and sow with rapes for seed, of which take two crops, then wheat the third year, beans the fourth, barley or oats the fifth, and the sixth year clover twice mown.

On a deep Loam.—If in sward, pare and burn, and then proceed as has been directed for clay.

On good Sand or Limestone.—If in sward, the first year pare and burn, and sow turnips to be eaten on the land by sheep, which will tend much to its improvement. Second year, barley. Third year, pease. Fourth year, oats or wheat sown with clover, a top-dressing on the clover. Fifth year, clover mown twice. Sixth year, wheat, then proceed as before.

On Moor-land or Peat.—First year, if in sward, pare and burn. Sow two successive crops of rape for the second year, and act as directed for clay. Oats the third year, clover the fourth, wheat the fifth, drilled pease the sixth.

On poor Sandy Soil, or poor Limestone.—First year, if in sward, pare and burn, sow turnips to be eaten off with sheep. Second year, barley, with seeds, to be eaten with sheep, two years. Third year, where vetches grow to perfection, sow them, and fold them off in the same manner as turnips, except in mowing and giving them in cribs. This method is called *up and down land*, and it will pay the best for improving by sheep, therefore every contrivance to find plenty of food for these animals will prove the most profitable to the farmer, and likewise mend the land for future crops.—*Parkinson's Experienced Farmer.*

SECTION VI.

OF THE CULTURE OF WHEAT.

Having in the preceding pages given a detailed account of different soils, as also of the particular manures, crops, and rotations suited to each, I shall now proceed to give a brief statement of the actual culture of grain; and, first, of

WHEAT.—Of this sort of grain there are many different kinds. The different species mentioned by English authors are numerous, and several varieties in every species, the number of which is annually increasing by importation from foreign countries. The sorts formerly cultivated in Scotland were the white and the red. The last is reckoned the more hardy plant of the two, and does very well in some soils and climates where the white does not succeed. Rivet or bearded wheat succeeds very well on stiff wet land, and the grain produces a great deal of flour.

The wheat commonly called white wheat, which we have in Scotland, is not of one kind, but a mixture of almost all the kinds used in England. This crop is usually sown after the land has been prepared by repeated ploughing and harrowing; but it is also capable of being raised after different kinds of green crops, as well as those of the roots and other sorts, with equal or more advantage. In some cases flax and hemp afford a good preparation for this grain; but some consider beans as the most favourable preparation, and experience has shown tares and clover to be nearly equal to them in this intention. In the county of Norfolk wheat almost constantly succeeds clover, except where pea or bean crops are interposed. After whatever kind of crop this sort of grain may be cultivated, the soil should undergo that sort of preparation that may be sufficient, according to the particular circumstances of the land, to bring it into a state of considerable fineness of mould, and thereby prevent as much as possible the rising of weeds. Where the district is early, and the land is preserved in good order, by proper modes of cropping, wheat may be sown after beans, whether cultivated in the drill or broad-cast system, with success. In other situations it is found advantageous, when this crop is to be cultivated after either pease, beans, or tares, to plough the land in as light and shallow a manner as possible, and then harrow and take out the roots and weeds, so that they may be consumed on the ground in heaps; the field being after this formed into proper ridges for the reception of the seed by ploughing again a few inches deeper than at the first. And, in some cases, it is even harrowed after the second ploughing, and ploughed a third time for the putting in of the grain.

Wheat may be cultivated to advantage, either after turnip or potato crops, on the heavier soils, where they have been kept particularly clean. But it has been remarked, in

"Practical Agriculture," on the authority of Mr Middleton, that this sort of crop should never be grown after other kinds of grain crops, such as rye, barley, or oats, and that the manure should not be applied to it but for such crops as may precede it. It is confirmed and established by the practice of the most correct farmers, that the period most proper for sowing this crop is from the beginning of September to the middle or even the end of October. The quantity of seed proper to be sown depends upon a variety of circumstances,—the kind of seed, the season of sowing, the condition of the land, and the state of the climate. In Essex they sow broad-cast about two and an half bushels, and in the drilling and dibbling modes from seven to ten or more pecks.

As soon as the seed has been put in the land it ought to be laid as dry as possible, and in all cases kept free and clean of weeds. The custom of feeding down wheat crops, where too forward or luxuriant, in the early spring months, by means of sheep, is a practice that has been contended to be beneficial in many cases.—*The Complete Farmer.*

The culture of summer wheat differs from that of spring-sown winter wheat, in its requiring a more minutely pulverized and rather richer soil. In most respects the preparation of the soil and sowing of this grain is the same as for barley.

TO JUDGE OF A SAMPLE OF WHEAT.—Examine by the eye whether the grain be perfectly full, plump, and bright; and whether there be any adulteration from sprouted grains, smut, or the seed of weeds, and by the smell whether it has been heated in the stack or mow, or kiln-dried; and, lastly, by the feel, to decide if it be sufficiently dry. The diseases of wheat are the rust, smut, or black mildew. To prevent the smut, the seed ought to be pickled with a compound of salt water and stale urine and lime,—the latter of which is much approved.

OF THE CULTURE OF RYE.—The varieties of rye are not above two known, as winter and spring rye. The soil for this crop may be inferior to that chosen for wheat; it will grow in dry sandy soils, the preparation of which should be the same as for wheat. The climate for rye may be colder than for wheat; it is sown either in autumn or in spring, and either broad-cast or in drills: no pickling or other preparation is given to the seed. It is sometimes sown as a green crop, with a view of affording some keep for sheep early in the spring, and also for being ploughed in as manure; but that husbandry must be bad and unfortunate which requires recourse to either mode. The after-culture, harvesting, &c. are the same as for wheat. It is more common than wheat on most parts of the continent; it is the bread-corn of Germany and Russia; in Britain it is of less value to the farmer than barley, oats, or pease.—*Loudon's Encyclopædia.*

Of the Culture of Barley.—Barley is the grain next in value to wheat; of what country it is a native is unknown, some assign it to Tartary, others to Siberia, and even Scotland has been named. It has been cultivated from the earliest antiquity, and was much in use among the Romans both as food for men and horses. In Sweden and Lapland it is more cultivated than any other grain. In Spain and Sicily they have two crops a year on the same soil; one is sown in autumn and ripens in May; the other is sown in May and reaped in autumn. There are six species and subspecies of this grain in cultivation besides varieties. These are spring barley, Siberia barley, winter barley, common or long-eared barley, naked barley, and sprat or battledore, from which new varieties may be procured by selection.

In choosing a sort of barley for cultivation regard must be had to the soil and climate. The hardiest may be considered the winter barley; and the earliest, and perhaps the best, is the spring barley. The long-eared is also a much-esteemed variety. In choosing from any particular variety, the best grain for sowing is that which is free from blackness at the tail, and is of a pale lively yellow colour. In this, as in all other grain, the utmost care should be taken that the seed be full-bodied.—*Loudon.*

The best soil for barley is a light rich loam finely pulverized. It will not grow well on soft soils nor on strong clays. The preparation of the soil for this crop is sometimes by a naked fallow, but generally by a turnip-fallow, or after potatoes; sometimes it is taken after pease or beans, but rarely by good farmers either after wheat or oats, unless under special circumstances. When sown after turnips it is generally taken with one furrow, which is given as soon as the turnips are consumed, the ground thus receiving much benefit from spring-frosts. But often two or more furrows are necessary for the fields on which the turnips were last consumed, because, when a spring drought sets in, the surface, from being poached by the removal or consumption of the crop, gets so hardened as to render a greater quantity of ploughing, harrowing, and rolling necessary, than would otherwise be called for. When sown after beans and pease, one winter and one spring ploughing are usually bestowed; but when after wheat, or oats, three ploughings are necessary, so that the ground may be put in proper condition. Where land is in such a condition as to require three ploughings before it can be seeded with barley, it is better to summer-fallow it at once than to run the risks which seldom fail to accompany a quantity of spring-labour. If the weather be dry, moisture is lost during the different processes, and an imperfect braird necessarily follows. If it be wet, the benefit of ploughing is lost, and all the evils of a wet seed-time are sustained by the future crop. The best season for sowing barley is considered to be from the beginning of April to the middle of May. Bear, or bigg, may be sown either in autumn, to stand the winter, or as late as the first week of June, as it ripens with greater rapidity than common barley.—*Brown's Rural Affairs, vol. II.*

OF THE CULTURE OF OATS.—The oat is a very hardy plant, and a good forager. By the strength of its roots it procures its food where many other plants starve. Hence the practice of giving less culture to the oats than to any other grain.—*Dickson's Agriculture.*

The varieties of this grain consist of what are called the common oat, the Angus oat, which is considered as an improved variety of the other. To these add the Poland, the Friesland, the red, the dun, the Tartar, and the potato oats. The Poland and potato oats are best adapted to rich soils; the red oat for late climates, and the other varieties for the generality of soils of which the British isles are composed.

Preparation.—Oats are chiefly sown after grass, sometimes upon land not rich enough for wheat that had been previously summer-fallowed, or had carried turnips; often after barley, and rarely after wheat, unless cross-cropping, from particular circumstances, becomes a necessary evil. One ploughing is generally given to the grass-lands, usually in the month of January, so that the benefit of frost may be gained and the land sufficiently mellowed for receiving the harrow. In some cases a spring-furrow is given when oats succeed wheat or barley, especially when grass-seeds are to accompany the crop. The best oats, both in quantity and quality, are always those which succeed grass, as a full crop is generally obtained, and the land left in good order for succeeding ones. The potato-oat is one of the most valuable varieties now cultivated, the origin of which cannot be easily traced, but it was pretty generally introduced over all Scotland in 1801 and 1802. It is not a favourite with some people upon shallow soils, as it yields less fodder than other varieties, but upon all deep or tender loams, especially such as have been taken up from grass, no kind of oat will make such an abundant return to the farmer, whether the number of bolls per acre, or the quantity of meal produced from these bolls, be considered.—*Brown's Rural Affairs.*

The Rev. Mr Dickson remarks, that "in ploughing lee for oats, when the land is soft and mellow, the plough should go as shallow as possible, and set the earth of the furrow as exactly upon its edges as possible; but when the land is stiff, it is necessary to plough deeper and to turn the turf fully over, that so the harrows may raise a kind of mould upon its back, to fill up the hollows between turfs, and to nourish the seed. It is common to lime the lee-ground that is intended for oats. This is a good custom, for lime promotes the corrupting of the grass-roots, by which means the land is the sooner reduced."—*Dickson's Agriculture, vol. II.*

OF THE CULTURE OF BEANS.—The bean is a valuable field-plant, as affording food for live-stock, and partly for man. It is said to be a native of Egypt; but, like other long-domesticated plants, its origin is very uncertain. It has been cultivated in Europe and Asia time out of mind.—*Loudon's Encyclopædia.*

Beans have been long known in Britain, but it is only of late years that they were extensively cultivated upon general soils, being formerly considered as adapted only to rich and moist clays. At that time they were all sown according to the broad-cast system, in which way, instead of benefiting the ground, they were often of incalculable detriment.

The different branches of bean-culture may be divided into, preparation, mode of sowing, quantity of seed required, hoeing-process, harvest-management, and produce.

Preparation.—Beans naturally succeed a culmiferous crop; and we believe it is not of much importance which of the varieties are followed, providing the ground be in decent order, and not worn out by the previous crop. The furrow ought to be given early in winter, and as deep as possible, that the earth may be sufficiently loosened, and room afforded for the roots of the plants to search for the necessary nourishment. This first furrow is usually given across the field, which is the best method when only one spring-furrow is intended; but, as it is now ascertained that two spring-furrows are highly advantageous, perhaps the one in winter ought to be given in length, which lays the ground in a better situation for resisting the rains, and renders it sooner dry in spring than can be the case when ploughed across. On the supposition that three furrows are to be given, one in winter and two in spring, the following is the most eligible preparation:—

The land being ploughed in length as early in winter as is practicable, and the *gaw* and head-land furrows sufficiently digged out, take the second furrow across the first as soon as the ground is dry enough in spring to undergo the operation; water-furrow it immediately, and dig again the *gaw* and head-land furrows, otherwise the benefit of the second furrow may be lost. This being done, leave the field for some days till it is sufficiently dry, when a cast of the harrows becomes necessary, so that the surface may be levelled; then enter with the plough and form the drills, which are generally made up with an interval of 27 inches. In the hollow of this interval deposite the seed by a drill-barrow, and reverse or slit out the drills to cover the seed, which finishes the process for the time. In ten or twelve days afterwards, according to the state of the weather, cross-harrow the drills, thereby levelling the field for the hoeing-process. Water-furrow the whole in a neat manner, and spade and shovel the *gaw* and head-land furrows, which concludes the whole process. This is the most approved way of drilling beans, though, in some seasons, upon wet soils, such a method cannot be practised. The next best mode is therefore to give only one spring-furrow, and to run the drill-barrow after every third plough, in which way the intervals are nearly of the same extent as already mentioned. Harrowing is afterwards required, before the young plants reach the surface, and water-furrowing, &c. as formerly described.

Dung is often given to beans, especially when they succeed wheat which had not received manure. The best way is to apply the dung on the stubble before the winter-furrow is given, which will greatly facilitate the after process. Land dunged to beans, if duly hoed, is always in high order for carrying a crop of wheat in succession. Different machines have been invented for drilling this crop, but the one most approved of is the hand-drill of a barrow-form. The quantity of seed to a Scotch acre is from four to five bushels.

Hoeing-Process.—About ten or twelve days after the young plants have appeared above ground, enter with the scraper, and loosen any weeds that may have vegetated. In about ten days after the ground has been scraped, according to the state of the weather, use the small swing-plough to lay the earth away from the sides of the rows, taking care not to loosen their roots. If any weeds stand in the rows pull them out with the hand, afterwards earth up the plants with the small swing-plough, or run the scraper in the intervals, as may seem convenient.

Harvest-Management.—Beans are usually cut with the sickle. It is proper to let the sheaves lie untied several days, so that the winning process may be hastened, and, when tied, to set them up, on end, in order that full benefit from the air may be obtained, and the grain kept off the ground. Beans, on the whole, are a troublesome crop to the farmer, yet of great utility in other respects; without them heavy soils can scarcely be managed with advantage, unless summer-fallow is resorted to once in four years; but, by the aid derived from drilled beans, summer-fallow may be avoided for eight years, whilst the ground at that period will be found in equal if not superior condition.

Produce.—Beans, where proper management is exercised, and natural diseases avoided, are generally a crop of considerable value, yielding on good ground from 32 to 40 bushels per Scotch acre.

OF THE CULTURE OF PEASE.—The pea is supposed to be a native of the south of Europe, and was cultivated by the Greeks and Romans, and in this country from time immemorial, though its culture appears to have diminished since the more general introduction of herbage plants and roots; and, except near large towns for gathering green, the pea has given way to the bean, or to a mixture of pease and beans.—*Loudon.*

Pease are partially sown with beans to great advantage; and when cultivated in this way the same system of preparation, &c. described under the head of Beans is to be adopted. Indeed, upon many soils not deep enough for an entire crop of beans, a mixture of pease, to the extent of one-third of the seed sown, proves highly advantageous. The beans serve as stabs or props to the pease; hence the latter, being thus kept off the ground, and furnished with air and other atmospherical nutriment, blossom and pod with much greater effect than when sown according to the broad-cast system.

The varieties cultivated are numerous; but those best adapted to field-culture may be divided into two kinds, namely, early and late, though these branch out again into several varieties. We have white pease both early and late, and likewise gray pease possessed of similar properties. As a general rule, the best seed-time for late pease is either in February or March, though early ones, such as the Hasting or Magbiehill pea, may be sown successfully after the first of

May. Pease ought to be sown tolerably thick, so that the ground may be covered as early as possible, as the plants never do much good till they begin to lock or twist. Broadcast pease are now rarely seen, except where soil and climate render beans unfit to be cultivated. One furrow is generally bestowed upon the crop, and the seed sown is for the most part one or other of the early varieties. If grass be broke up with oats, pease and beans may follow; but to take the latter in the first place is setting system at defiance, and introducing confusion into the after rotation.—*Brown's Rural Affairs, vol. II.*

Of the Culture of Tares.—Tares, vetches, and Scotch grey pease, appear to be members of the same family. Possessing similar properties, and yielding similar nourishment, they are capable of being used for the same purposes at different seasons. Taking tares to be the father of the family, we shall restrict our observations to this plant, though each of them is equally applicable to the other plants now mentioned.

The tare is a plant of hardy growth, and, when sown upon rich land, will return a large supply of green fodder for the consumption of horses, or for fattening cattle. When intended for this purpose the seed ought to be sown tolerably thick, perhaps to the extent of four bushels to the Scotch acre; though, when intended to stand for seed, a less quantity is required. When meant for seed, early sowing ought to be studied; betwixt the first of April and the latter end of May will answer well, provided crops in succession from the first to the last mentioned period be regularly cultivated. After the seed is sown, and the land carefully harrowed, a light roller ought to be drawn across, so that the scythe may be permitted to work without interruption.—*Brown.*

A writer in the Farmer's Magazine, vol. I., observes, "That the most productive method of sowing tares, when intended for seed, is to mix them among beans when drilled, at the rate of one firlot of tares to one boll of beans. By this method the crop is much improved and easier harvested, at same time serving as bands for the principal crop. As a green crop they come in with great advantage between the first and second cuttings of clover, or when the latter fails."

SECTION VII.

OF PLANTS OF WHICH THE ROOT IS THE PRINCIPAL PART.

THE potato is supposed to be a native of South America. Sir Joseph Banks considers that this root was first brought into Europe from the mountainous parts of South America, near Quito, where they were called *papas,* to Spain, in the early part of the sixteenth century. From Spain, where they were called battatas, they appear to have found their way first to Italy; where they received the name *taratoufli.* The potato was received by Clusius, at Vienna, in 1598, under the name of *taratouflo.* In Germany it received the name of cartoffel.

To England the potato was brought from Virginia by the colonists sent out by Sir Walter Raleigh, in 1584, and which returned in July, 1586.—*Loudon.*

Potatoes, as an article of human food, are now next to wheat, and of the greatest importance in the eye of a political economist. From no other crop that can be cultivated will the public derive so much food as from this valuable esculent; and it admits of demonstration, that an acre of potatoes will feed double the number of people that can be fed from an acre of wheat. Though it was near the middle of the eighteenth century before they were generally known in this country, they are now relished almost by every palate; and without them it is believed there is hardly a dinner served up, for six months of the year, in any part of the kingdom. Notwithstanding all these things, we are doubtful whether potatoes can be placed so high in the scale as several other articles of produce, when the profit-and-loss account of the agriculturist is to be ascertained.—*Brown.*

The varieties of the potato are innumerable; the earliest varieties are chiefly cultivated in gardens, and therefore we shall only notice such early sorts as are grown in the field. These are, the early kidney, the nonsuch, the early shaw, the early champion. The last is the most generally cultivated round London; it is very prolific, hardy, and mealy. The late field-varieties in most repute are,

The red-nose kidney,—black skin, interior good.

Large kidney,—purple, very mealy, keeps well.

Bread-fruit, raised in 1810,—red-apple, keeps the longest.

Lancashire pike-eye, good,—tartan, keeps well, and well-tasted.

The varieties for live-stock are,

The yam, which succeeds best on heavy soils. The ox-noble, large, yellow without and within; very prolific, not fit to eat.

The late champion, large and prolific, and may be used as human food.

New varieties may be procured with the greatest ease.—*Loudon.*

The varieties of this most excellent root now cultivated in Britain are become so numerous that it is impossible to treat of each, or even to give a list of their names, many of which must have little meaning, such as "commonwise, quaker-wise, drunken-landlord, Budworth's dusters, Hatley's non-such, invincibles, golden-gulleons, lady-queens, magpies, &c.

But, laying aside the merit or demerit of the many appellations given to this root, it may now justly be termed, in the language of the celebrated agriculturist, Mr Donaldson, The bread-root of Great Britain and Ireland."

We shall now direct our readers to the account given by the Right Hon. Sir John Sinclair, as to the most advantageous mode of raising this crop, which he says, "though peculiarly applicable to the neighbourhood of Glasgow, does not vary materially from the practice adopted in other parts of the kingdom.

"*Preparation.*—The ground is prepared for a potato-crop by ploughing in winter, or rather in autumn; and to keep it dry during winter, the ridges are gathered, and the furrows kept clear. It is sometimes ploughed once, and sometimes twice, and well harrowed during the spring; and the drills being formed, the dung and cuttings are put in and covered with the plough.

"In sandy ground the cuttings are put below, and in heavy soil, above the dung. The potatoes are dressed in summer in the ordinary way, the drills being pared or sliced, horse-hoed, hand-hoed, weeded, &c. as in other parts of the country."

The Disease which affects the Potatoes is called the curl, the real cause of which has not yet been, and probably never will be ascertained. It seems to be one of those secrets of nature kept from the knowledge of man. Out of the many ingenious theories which have been offered to the public concerning its cause, the following would appear to be the most plausible, namely, that the curl is occasioned by an over-ripeness of the plant, whereby its strength, or procreative power, is so much debilitated as to render it unable to bring forward a healthy plant afterwards.—*Brown.*

In regard to the produce and value, that must vary according to the condition of the ground, the time and manner of culture and cropping, the season and other relative circumstances. A potato-crop will average from 40 to 50 bolls per acre. They will sometimes fall short of 40, but many have reaped more than 60 bolls from one acre. Farmers occupying a dry loamy soil, instead of raising only turnips for feeding, raise nearly half potatoes and half turnips; and it is stated on good authority, that by turnips an ox may be fattened in five months; and that by giving turnips the one half of the day and potatoes the other, he may be fattened in three months. The culture of the root is well known to be an excellent preparation for wheat.—*Husbandry of Scotland.*

Of the Culture of Turnips.—The turnip is a native of Britain, but in its wild state is not to be recognised by ordinary observation from wild mustard. It was cultivated as food for cattle by the Romans, and has been sown for the same purpose in the fields of Germany and the Low Countries for time immemorial. When they were introduced into this country as a field-plant is unknown, but it is certain that they were in field-culture before the middle of the seventeenth century, though then, and for long after, they were raised in a very inferior and ineffectual manner.—*Loudon.*

The Right Hon. Sir John Sinclair observes,—“ That drilled turnips is one of the great boasts of Scottish agriculture; and though the idea of drilling them was originally taken from the celebrated Tull, yet the precise mode of conducting this operation, now universal in this country, certainly originated in North Britain. Other attempts of a similar nature may have been previously made, both in England and in Scotland; but Mr Dawson of Frogden is the individual who first brought that practice to its present state of excellence.”

The varieties commonly cultivated in Scotland are known under the name of the Common Globe Turnip, the Yellow Turnip, and the Swedish.”—*Husbandry of Scotland.*

Preparation.—The first ploughing is given after harvest, or as soon as the wheat-seed is finished, either in length or across the field, as circumstances may seem to require. In this state the ground remains till the oat-seed is finished, when a second ploughing is given to it, usually in a contrary direction to the first. It is then repeatedly harrowed, often rolled between the harrowings, and every particle of root-weeds carefully picked off with the hand; a third ploughing is then bestowed, and the other operations are repeated. In this stage, if the ground has not been very foul, the seed-process generally commences.

Manuring.—Turnip-land cannot be made too rich, for in fact the weight of the crop depends in a great measure upon its condition in this respect. Manure is sometimes applied to the crop which immediately precedes the turnips; but to answer well in this way, the land must naturally be of an excellent quality. In other cases, where the land is in good order, it is laid on the stubble previous to the first ploughing; but generally the dung is laid on immediately before the seed is sown; the ground is formed into drills or ridges, from 27 to 30 inches wide, and the manure spread in the intervals between them; the drills are then split by the plough, the earth on each side covers the dung, forms a drill where the interval formerly was, and furnishes a bed for the seed. These operations are now so well understood, that it is unnecessary to describe them more particularly.

Sowing.—The next part of the process is the sowing of the seed. This, almost in every case since turnips were introduced into Scotland, has been performed by drilling-machines of different sizes and constructions, though all acting on the same principles. From two to three pounds of seed are sown upon the acre, though the smallest of these quantities will give many more plants, in ordinary seasons, than are necessary. Turnips are sown from the beginning to the end of June; but the second and third weeks of the month are, by judicious farmers, accounted the most proper time. As a general rule, it may be laid down, that the earliest sowings should be on the latest soils.

Cleaning Process.—The first thing to be done in this process is to run a horse-hoe, provincially called a scraper, along the intervals, keeping at such a distance from the young plants as not to injure them; the hand-hoeing then commences, by which the turnips are all singled out at a distance from eight to twelve inches, and the redundant ones drawn into the spaces between the rows. In eight or ten days, or such a length of time as circumstances may require, a horse-hoe of a different construction from the scraper is used. This is a plough of the same kind with that commonly wrought, but of smaller dimensions. By this plough the earth is pared away from the sides of the drills, and a sort of new ridge formed in the middle of the former interval. The hand-hoers are again set to work, and every weed and superfluous turnip is cut up; afterwards the horse-hoe is employed to separate the earth which it formerly threw into the furrows, and lay it back to the side of the drills.

Consumption.—A great part of turnips is consumed by sheep, because the feeding of these animals can be carried on upon a much larger scale, and at less expense, than in most cases with cattle. Many, however, consume their turnips both ways; they draw a certain number of drills, generally three or four in one place, and leave as many, or more, to be eaten with the sheep; by which method the whole ground is equally benefited by the urine and dung of the flock.

What is stated concerning turnips applies to the white or the common kind; but there are other varieties of equal importance to the farmer which ought not to be unnoticed; these are yellow and Swedish turnips,—articles of eminent benefit to feeders in the latter end of spring.

YELLOW TURNIP, as now cultivated in the field, is quite different from the yellow garden-turnip, being larger in size, containing more juice or nutritive substance, much easier cultivated, and preserving its powers till the middle of May. Upon ordinary soils, field yellow turnip is superior to *ruta baga*, because it will grow to more weight, and stand the frost equally well. No farmer who keeps stock to any extent should be without a few acres of this root.

RUTA BAGA, OR SWEDISH TURNIP.—This is another article of great importance to the farmer, affording green food of the choicest quality, highly relished by every kind of live-stock, and of great advantage in the feeding of horses, either raw or boiled, or with broken corn. Rich soil, however, is required for this article, for it will not grow to any great size on soils of middling quality, whatever quantity of dung be applied. The mode of cultivating this root, and field yellow turnip, is in every respect similar to what is stated concerning common turnips, with these exceptions,—that earlier sowing is necessary, and that the plants need not be set out so wide, as they do not swell to such a large size.

Storing of Turnip, abstractedly considered, appears to be attended with direct and unavoidable loss, but when viewed in reference to the climate and agriculture of Scotland, is necessary in unfavourable situations and eventually advantageous in others; necessary in high lands, where the severities of winter prevent turnips from being regularly carried off the ground to supply the consumpt of cattle; and advantageous in low lands, by enabling the farmer to introduce wheat after turnips, where he could otherwise obtain only a crop of oats or barley.

From various experiments this conclusion is drawn,—that turnips to be preserved during winter from running into the extremes of vegetation or putrefaction require a considerable exposure to the air. On this principle is founded the common practice of placing the depot in a dry and well-aired situation, and protecting it with nothing but a covering of straw. Common turnips stored in this manner are kept in good preservation till the middle of April.—*Brown.*

The diseases and injuries to which the turnip-crop is liable are various; their leaves are liable to the attacks of the fly, the caterpillar, the slug, and the mildew; their roots are subject to worms, finger and toes, anbury, canker, and wasting by water or frost. Of all or most of these diseases, it may be observed, that they neither admit of prevention or cure by art. To prevent the fly it has been recommended to steep the seed in the drainage of dunghills. To prevent the caterpillar, it has been proposed to place vessels with tar in several parts of the field. To catch the slug, it may be proper to strew the field with cabbage-leaves, or any similar vegetable, with a leaf to each square yard, the slug, when feasting on these, should be picked off, and the leaves replaced every twenty-four hours. In short, the best preventive for all these diseases is to prepare and manure the soil properly.—*Loudon.*

Of the Culture of Parsnips.—The name of a tap-rooted plant, cultivated for the sake of the root. This sort of crop requires a rich, mellow, and deep soil, in order that the roots may have full room to thicken and run downwards. It is the garden-parsnip that is made use of in the field-culture, which has a long fleshy root much larger than the carrot, and equally sweet, nutritious, and juicy. From its being more hardy, it is probably better suited to the northern parts of the island than the carrot. Its easy culture, and the large produce that it is capable of affording, should render it more an object of culture to the farmer, who has soil of the rich, dry, putrid, sandy loam, which should be ploughed as deep as possible about the end of autumn, and left for the frosts to exert their influence upon. This fine, deep pulverization of the land is effected in different ways in different districts; the principal object of which is to render the soil mellow and loose, to as great a depth as possible. Well-rotted farm-yard dung is the best adapted to this crop being turned into the soil by a light ploughing, immediately before the time of putting the seed into the ground. In respect to the time of sowing, the most usual period is the beginning or middle of February, or in the following month. The quantity of seed, as well as that of other crops, must be different according to circumstances, but in general five pounds to an acre will be required. With regard to the management of this crop after being put into the ground (whether it be sown broad-cast or in drills), it is obvious that it should be kept perfectly clean and free from weeds during the early part of its growth. It is further observed, that as this root strikes downwards to a great depth, it may with propriety be introduced after most sorts of fibrous-rooted crops. They are seldom injured by frosts or other causes during winter, or liable to be destroyed by any kind of insects. In the fattening of cattle this root is equal, if not superior, to the carrot; and when given to milch-cows, with a little hay in the winter season, the butter is found to be of as fine a colour and as excellent a flavour as when feeding on the best pastures. When chopped and used with dry cut food, horses eat them freely, and are kept in excellent condition with them.

On this plant it has been remarked by Mr Young, that when the soils are suitable, the inducement to the cultivation is very strong, as they fatten bullocks equal to oil-cake, and are of great use to hogs. They have also the valuable property of preparing the land in an excellent manner for grain-crops.—*The Complete Farmer.*

Of the Culture of the Carrot.—The carrot is a native of Britain, and though long known as a garden-plant, it is comparatively but of late introduction in agriculture. The varieties of carrots cultivated in gardens are numerous, but the only sort adapted to field-culture is the long red. New seed is most essential; old seed, or even a mixture of old and new, ought to be avoided. The best soil for carrots is a deep rich sandy loam; such a soil ought at least to be a foot deep, and all equally good from top to bottom.

Preparation.—In preparing the soil for the carrot it is necessary to plough it before winter, and to work it well by the plough in spring to at least the depth of a foot. The Suffolk and Norfolk farmers, who are the best carrot-growers, always use well-rotted farm-yard dung, which is turned into the soil at the last ploughing in March with a common plough, and afterwards trench-ploughed about 14 inches deep; it is then harrowed very fine, and the seed, after being well rubbed and mixed with earth or sand to cause it to separate, is sown either in the end of March or first of April.

The quantity of seed, when carrots are sown in rows, is two pounds per acre, and for broad-cast sowing five pounds. —*Loudon*.

To these remarks respecting the culture of carrots I shall now give an outline regarding their culture in Scotland, given by Mr William Scott, for many years land-steward to Admiral Elliot, of Mount-Tiviot, in Roxburghshire, and to General Robertson of Lawers, in Perthshire. In preferring the following account to many others I have two reasons; the first is, that the Right Hon. Sir John Sinclair has been pleased to state, that it is the most satisfactory information which he received regarding the culture of this root in Scotland. In the second place, it will show that carrots have been cultivated in Strathearn as successfully as in Roxburghshire. "The crop which Mr Scott preferred to precede carrots was oats, for the following reasons:—1st, The carrots formed a part of the same field with other green crops; and, 2d, They were more certain not to be injured by the worm when they were taken after a corn-crop than after the ley or grass one. Mr Scott prepared the ground by means of a trench-ploughing as soon after harvest as the oats were carried off the field; it lay in that state till the end of February, then it was wrought with the plough and harrows to a loose mould, and was afterwards formed into ridges, 30 inches wide, and from 16 to 18 deep. These were formed by going twice round in the same furrow, somewhat similar to trench-ploughing, which raises the top to the above height from the bottom; by this method all the surface-mould is accumulated. The manure which Mr Scott preferred was a well-prepared compost of peat-moss and dung, about ten tons to each English acre, regularly spread in the bottom of the drills. In doing of this care should be taken not to break down the ridges; for, if this is done, the dung may be left too near the top of the ridges or surface, and the carrots would grow short, and full of fingers or branched roots; whereas, when the dung is laid full 16 or 17 inches deep, not a single fork-rooted carrot will be seen,—a singular proof of the advantage of laying dung deep, at least for carrots.

After the dung is spread, according to the above-mentioned direction, the drills are split down, and raised up the same way as before, going twice round every ridge, in order that there may be fully 16 inches from the dung all of good mould. The dung being at the bottom makes the tap-root of the carrot push immediately down and swell to an enormous size, the roots being often 16 inches in girth, and 18 or 20 inches in length.

" Before sowing the seed a rut is made along the top, about four or five inches wide and three deep, by means of a hoe, to allow room to the plants to stand along the top of the drills similar to double rows. At Lawers the crop, in 1810, was 33 tons and 70 stones Dutch, produced from less than a Scotch acre and a half of ground.

" The best way to preserve carrots is to top them close by the head of the root, and lay them gently down in a heap within a house. They should be turned over once a month, picking out the spoiled ones, which attention will make them keep sound till the end of April.

" The second thinnings of carrots afford great relief to young pigs, as at that time no potatoes can be had. In short, no food is so good for young animals of all sorts as carrots; and, when good seed can be obtained, no crop will repay so well the expense of cultivation on a moss soil."—*Husbandry of Scotland.*

SECTION VIII.

OF THE CULTURE OF PLANTS OF WHICH THE LEAVES AND THE STALK FORM THE PRINCIPAL PART, INCLUDING RYE-GRASS, CLOVER, SAINFOIN, LUCERN, BURNET, FLAX AND HEMP.—OF THESE IN THEIR ORDER.

THE biennial rye-grass is well known as being universally sown, either with or without clover, among corn-crops, with a view to one crop of hay the succeeding season. It attains a greater height, and produces a longer, broader spike of flowers than the perennial rye-grass, and the produce in hay is considered greater than that of any other annual grass equally palatable to cattle. It prefers a rich loamy soil, but will grow on any surface whatever, not rock or undecayed bog.

The perennial rye-grass differs from the other in being of somewhat smaller growth, and in abiding for several years, according to the variety and the soil and culture. Many consider this grass coarse, benty, and very exhausting to the soil; but, after all the experiments that have been made on the other grasses, none have been found to equal it for a course of mowing and pasturing for two, three, or seven years. When intended as a pasture-grass, if stocked hard, and when for hay, if mown early, the objections to it are removed.—*Code of Agriculture.* George Sinclair says, " The circumstance of its producing abundance of seed, which is easily collected, and vegetates freely on any soil, its early perfection and abundant herbage the first year, which is much relished by cattle, are the merits which have upheld it to the present day, and will probably for some time to come continue it a favourite grass among farmers."

The clovers are a numerous family, chiefly natives of Europe: those selected by the agriculturist are natives of Britain. The species of clover in cultivation are the red clover, a biennial, and sometimes, especially on chalky soils, a triennial plant, known from the other species by its broad leaves, luxuriant growth, and reddish purple flowers.

The white, or creeping, or Dutch clover, a perennial plant, known by its creeping stems and white flowers.

The yellow clover, hop-trefoil, or shamrock clover, a biennial, known by its procumbent shoots, yellow flowers, and black seeds.

In the choice of sorts the red or broad clover is the kind most generally cultivated on land that carries white and green crops alternately, as it yields the largest produce for one crop of all the other sorts. White and yellow clover are seldom sown with it, unless when several years' pasturage is intended.

The soil best adapted for clover is a deep sandy loam, which is favourable to its long tap-roots; but it will grow on any soil, provided it be dry.

The climate most suitable for the clovers, as of most plants natives of Europe, is one neither very hot nor very dry and cold.

The preparation of the soil and manures which clover receives in ordinary farm-culture, are those destined also for another crop; clover, mixed with a certain proportion of rye-grass, being generally sown along with or among corn-crops, and especially with spring-sown wheat, barley, and the early varieties of oats. Unless, however, the soils on which these crops are sown are well pulverized, and have been some years under tillage, clovers will not succeed in them, it being ascertained that newly-broken-up leys or pasture-grounds cannot be sown down or restored to clover and grasses till the soil is thoroughly comminuted, and the roots of the former grasses and herbage completely destroyed.

The time of sowing clover-seeds is generally the spring, during the corn-seed time, or from February to May; but they may also be sown from August to October; when unaccompanied by any corn-crop, this will be found the best season, as the young plants are less liable to be dried up and impeded in their progress by the sun, than when sown alone in spring, and remaining unshaded during the hot and dry weather of July. Nature has not determined any precise depth for the seed of red clover more than of other seed. It will grow vigorously from two inches deep, and it will grow when barely covered. Half an inch may be reckoned the most advantageous position in clay soil; a whole inch in soil that is light or loose.

In the operation of sowing some consider it best to sow the clover and rye-grass separately, alleging that the weight of the one seed and the lightness of the other are unfavourable to an equal distribution of both. The quantity of seed sown on an acre is exceedingly various. When pasture is the object, more seed ought to be allowed than is necessary when the crop is to be cut green for soiling; and for hay less may suffice than for either of the former.

The after-culture of clover and rye-grass consists chiefly in picking off the stones or other hard bodies which may appear on the surface and rolling, in the spring succeeding that in which it was sown. All the herbage tribe ought to be mown before the seed is formed, and indeed before the plants have fully blossomed, that the full juice and nourishment of the herb may be retained in the hay. When seed is to be taken they should stand till fully ripe.—*Loudon.*

Sainfoin is a deep-rooting perennial, with branching spreading stems, compound leaves, and showy red flowers. It is a native of England and many parts of Europe, but never found but on dry warm chalky soils, where it is of great duration. Its herbage is said to be equally suited for pasturage or for hay; and when eaten green it is not apt to swell or hove cattle like the clovers or lucern. Arthur Young says, that upon soils proper for this grass no farmer can sow too much of it; and in the Code of Agriculture it is said to be "One of the most valuable herbage-plants we owe to the bounty of Providence."

The best preparation which any soil fit for this plant can undergo is unquestionably that of trenching. The usual preparatory culture, however, is the same as for clover;

ploughing deeper than ordinary, either by means of the trench-plough, or, what is better, because more simple, by the common plough going twice in the same track. With respect to the season of sowing sainfoin, it may be observed, that the earlier it can be put into the soil in spring the better. Some, however, suppose that it may be deferred to the middle of March without injury

The manner of sowing is almost always broad-cast, and the quantity of seed employed is about four bushels the acre. The after-culture of sainfoin consists in occasional dressings with manure, and in the judicious intervention of mowing and pasturing. In top-dressing sainfoin, peat-ashes are the best material that can be made use of where they can be procured in sufficient quantity. In taking and using this crop the same practices may be followed as in taking clover. The usual duration of sainfoin, in a profitable state, is from eight to ten years. It usually attains its perfect growth in about three years, and begins to decline towards the eighth or tenth on calcareous soils, and about the seventh or eighth on gravels.—*Loudon.*

Lucern is a deep-rooting perennial plant, sending up numerous small and tall clover-like shoots, with blue or violet spikes of flowers. It is a native of the south of Europe; it is highly extolled by the Roman writers. Columella estimated lucern as the choicest of all fodder, because it lasted many years, and bore being cut down four or five times every year. It enriches, he says, the land on which it grows, fattens the cattle fed with it, and is often a remedy for sick cattle. About three quarters of an acre of it is, he thinks, sufficient to feed three horses the whole year. But, though it was much esteemed by the ancients, and has been long cultivated to advantage in France and Switzerland, it has yet found no great reception in this country. If any good reason can be given for this, it is that lucern is a less hardy plant than red clover, requires three or four years before it comes to full growth, and is, for these and other reasons, ill adapted to enter into general rotations.

The soil, climate, preparation, and after culture best suited to this plant are very similar to those best adapted to sainfoin.

Burnet is a native plant, a hardy perennial, with compound leaves, blood-coloured flowers, and a long tap-root. Dr Anderson reports, that burnet retains its verdure pretty well during the winter months, but affords such scanty crops as hardly to be worth the attention of the farmer.—*Loudon.*

I shall conclude these observations respecting Sainfoin, Lucern, and Burnet, with a general remark of Mr Brown's, in which he states, " These green crops have often been greatly extolled, but the small progress hitherto made in their cultivation abundantly justifies the conclusion meant to be drawn, viz. that the climate of the British isles is unfriendly to their growth. In fact, with none of them will the like weight of crop be obtained as with good clover and rye-grass; and, this being the case, it need not excite wonder that agriculturists should continue to use the plants which yield them the most bountiful return, and avoid exotics not suited to our climate."

FLAX.—This plant, though very different in its uses from those that have been mentioned, yet falls within this class, being cultivated equally for the covering of its stalk and its seed, the former being used in making cloth, and the latter for oil. " The most proper soil for flax is a deep free loam, such as is not liable to become too much charged with moisture, or too dry, but which has been rendered free of weeds and fine by tilth. It is remarked by Mr Donaldson, that flax is sown after all sorts of crops, but is found to succeed best on lands lately broken up from grass. In regard to the choice of seed, he says, that which is of a bright brownish colour, oily to the feel, and at the same time weighty, is considered the best."—*Farmer's Dictionary*.

As to the preparation of the soil for this crop, the Rev. Adam Dickson, along with several other celebrated agriculturists, states, that " If the land is not fallowed, it should be in good order, and receive a ploughing before winter, so that it may be properly mellowed by the frost. Upon this winter-furrow the seed may be sown, if the land is very clean; if not, it should get a second ploughing at seed-time. When flax is to be sown upon land newly broken up, the land should likewise be ploughed before winter. In sowing, the flax must be treated like grass-seeds. The land must be harrowed and well smoothed before the seed is sown, and then another slight harrowing given to cover it. All the clods must be well broken, and all the stones and weeds gathered off, so that the seed may come up equally.

The proper time for sowing is in March, or in the beginning of April. The proper quantity of seed for an acre must be adjusted according to the condition of the land The richer that the land is, provided it is not too open, the greater quantity of seed in proportion should be sown, because one grain of seed produces no more than one stalk;

and the richer that the land is, it is able to nourish the greater number of stalks.

When the flax is from three to four inches high, it ought to be cleared of all weeds; in the doing of which the weeders should always go into the field barefooted, and perform their work either sitting or lying. Mr Brown states,—"That different opinions are held with respect to the period when flax can be most profitably pulled; but, generally speaking, it is the safest course to take it a little early, any thing wanting in quantity being in this way made up by superiority of quality; besides, when pulled in a green state, flax is not a scourge to the soil, but when suffered to ripen its seed sufficiently, it is a severe crop."

Method of Watering.—When flax is pulled, it ought to be immediately put into the water, so that it may part easily with the rind. Standing pools of soft and clear water are the most proper for the purpose, occasioning the flax to have a better colour, to be sooner ready for the grass, and even to be of superior quality in every respect. In warm weather ten days of the watering process is sufficient; but it is proper to examine the pools regularly after the seventh day, lest the flax should putrefy or rot, which sometimes happens in very warm weather. Twelve days will answer in any sort of weather, though it may be remarked, that it is better to give rather too little of the water than too much, as any deficiency may be easily made up by suffering it to lie longer on the grass, whereas an excess of water admits of no remedy.—It is observed by Sir John Sinclair,—"That flax might be more cultivated in some parts of Scotland than hitherto has been the case; yet in 1812 it was supposed that there were at least 5000 acres of this crop raised in the country, producing above L.20 per acre, and consequently worth at least L.100,000, besides furnishing the raw material for a most valuable manufacture.

THE HEMP is a plant of equal antiquity with the flax. It is supposed to be a native of India, or of some other Asiatic country. It is one of the few plants employed in British agriculture, in which the male and female flowers are in different plants,—a circumstance which has some influence on its culture and management.

The soils most suitable for hemp are those of the deep black putrid vegetable kind. Mellow rich clayey loams do well, and nothing better than old meadow land.

The preparation of the soil, and place in rotation, are the same as for flax. The season of sowing is towards the end of April, when there is no longer any danger of frost injuring the rising plants. The quantity of seed is from two to three bushels, according to the quality of the land. In quality the seed should be fresh, heavy, and bright in colour. Broad-cast is the universal mode of sowing, and the only after-culture consists in keeping off birds when it is coming up; in weeding, and sometimes in supporting the crop by cross-rods or lines.

In taking the hemp-crop, two methods are in use according to the object in view. When the crop is grown entirely for the fibre, it is pulled when in flower, and no distinction made between the male and female plants; but as it is most commonly grown both with a view to fibre and seed, the usual practice is to pull the male plants as soon as the setting of the seed in the females shows that they have effected their purpose. As the female plants require four or five weeks to ripen their seeds, the males are pulled so long before them; after being pulled it is treated in the manner of flax. On good soils in this country it grows to the height of six or seven feet, and on good soil in warm climates to the height of fifteen or eighteen feet.

The uses of hemp are well known, as well as its great importance to the navy for sail-cloths and cordage. Exceeding good huckaback is made from it for towels and common table-cloths.—*Loudon.*

Regarding this plant Sir John Sinclair is of opinion, "That it might be raised with much advantage on peaty soils in the Hebrides, where there is such a command of sea-ware as manure, and where the people, more especially in the winter season, want employment."

Of Ridging.—On dry soils ridges are of use merely as lines for marking out the operations of the plough, and the sowing and reaping. But ridges are essential in wet soils, operating as open drains, without the assistance of which the crops would rarely be productive in rainy seasons. It is of infinite importance, therefore, to the farmer to be fully master of the rules by which ridges can be formed to the best advantage. This subject may be considered under the following heads:—1st, The proper length of ridges; 2d, Their breadth; 3d, Their straightness, and the best mode of altering the shape of crooked ridges; 4th, Their height; and, 5th, The advantage of ridging diagonally where the ground is steep.

1. *The proper Length of Ridges.*—The length of a ridge must vary according to the size of the enclosures, the accli-

vity of the ground, and the nature of the soil, whether wet or dry. On fields which have much acclivity a long ridge is hurtful, as it tends to fatigue the horses, and to overstrain them in their wind; and if much rain or snow fall the surface of the ridge will be injured, more especially in the furrows by the long run, and large collection of water. In such situations, ridges of about 150 yards are found to be most convenient. In regard to wet soils, where the ground is flat, from 240 to 300 yards are considered to be the proper length. If it should exceed 300 yards, the water might not easily get away.

In dry soils, and where the land is level, the ridge may be from 350 to 400 yards. When it much exceeds the latter size, it becomes more difficult to sow, and it has a tendency to discourage the reapers.

2. *The Breadth of Ridges.*—This is a subject on which there is a great diversity of opinion; in some cases only four, in others thirty feet and upwards being recommended. As the question is of great importance, it may not be improper to state a few of the reasons urged in favour of the different sizes, leaving the reader to judge which ought to be preferred.

Some have maintained, that when land cannot be drilled or sown before the 20th of October, it is better to plough in the wheat on four-feet ridges. On wet soils this is advisable, because small ridges keep the seed dry; others have objected to this method, as the land must be greatly poached by the operation of ploughing, more especially where the ridges are small.

Others contend, that, in the case of poor clayey wet soils, the ridges should be made six, seven, or at the most eight feet broad. This breadth leaves the soil equally distributed, and the grain will be equally healthful, from the furrow to the middle of the ridge.

Others maintain the superiority of twelve-feet ridges even in dry soils whilst under tillage, as on them an able sower can always command the seed, even in a strong wind; such a size also is well calculated for the drill system of husbandry. On this part of the subject I shall conclude with the remarks of Mr Wight of Ormiston, who always found a ridge of fifteen feet preferable to all other breadths. He observes, that it is as easy to keep it dry as one of ten feet, and easier than one of eighteen; that the furrows are not more bared than the ten feet, and not so much as those of an eighteen-feet ridge. The fifteen feet can be sown at all times with once going about, which is not the case with an eighteen-feet ridge. If a field of forty ridges, fifteen feet broad each, require ten hours to sow and harrow it, the same field of sixty ridges, at ten feet broad, will require fifteen hours for the same operations. The forty ridges will require seventy-nine turnings of the sower and harrows, and forty-one turnings of the water-fur plough. The sixty ridges will require 119 turnings of the sower and harrows, and sixty turnings of the water-fur plough. In all the other operations of the plough, one-third fewer feerings are required. Three reapers, on a fifteen-feet ridge, will seldom be behind four reapers on an eighteen-feet ridge, as each reaper in the latter case has to stretch over six in place of five feet to accomplish the proportion. On these grounds Mr Wight is of opinion, that in wet soils and climates the fifteen-feet ridges are preferable to all others.

Farmers, however, in general, on wet soils of strong clayey land, consider ridges of eighteen feet to be the most advantageous for preventing wet, and for dunging, sowing, harrowing, and reaping.

3. *Straightness of the Ridge.*—It is extremely material to have the ridge as straight as possible. Mr Curwen justly remarks, that it is the very essence of good ploughing to hold the plough even, which it never can be if it has to work in a curve. In ploughing crooked ridges every practical farmer must know how awkwardly the plough moves in them. In the convex side it constantly inclines to take too narrow a furrow, and in the concave side the reverse, owing to the direction of the draft being different from the direction of these sides.

4. *Height of the Ridge.*—It is highly necessary that ridges on wet land should be well rounded, so as to form the segment of a circle. This is effected by *gathering* the soil once or twice, according to its dryness or wetness in the course of ploughing the ridge.

5. *Line of Direction.*—In steep grounds it has been found a great advantage, both for the facility of ploughing and for draining, to plough diagonally from left to right; the furrow going up the hill falls off from the plough, the horse has better footing and less pull, and the furrow catches the running springs. In regard to steep banks, there are four modes in which the ridges may be laid out:—1st, When they are planned on the same line or level. Sometimes this sort of ridge is carried all round a hill in a spiral form, beginning at the bottom. This is done partly with a view of prevent-

ing the soil and manure from being washed down, and partly from the idea that it is easier for the cattle to work it; but it keeps up the water in the furrows, and is an awkward mode of ploughing. 2d, When the ridges are straight up and down, this is a very improper mode; the soil and manure are both apt to be washed down; and, when the plough is going up, the earth makes such a resistance, that it is extremely difficult for the cattle to cleave the ground.

6. *From the Top of the Bank sloping to the Left.*—This mode does not answer; for, when the plough is going up, the ploughman is obliged to force the earth against the bank, which makes but very indifferent work, and it cannot be done without injury to the cattle.

7. *From the Top of the Bank sloping to the Right.*—This is the proper plan to be adopted; for when the ridges are laid in this manner, the ground always falls from the plough as it goes upwards, without any great exertions on the part either of the ploughman or cattle. The ground is not forced against the bank until the plough is coming down, and then it is done with so much more ease, that one-third less strength of cattle will plough an equal quantity of land.

The great difficulty in ploughing is to determine the width and depth of the furrow-slice, which must vary according to the object the farmer has in view, and the nature of the soil, the preceding and succeeding crop, &c. The following points remain to be touched upon regarding ploughing:—1st, The angle at which the furrow-slice should be laid in particular cases; 2d, The proper time for ploughing wet and dry soils; and, 3d, The advantage of water-furrowing.

1. As one principal object in ploughing is to lay the land so that the harrows may, in the most effectual manner, raise a mould to cover the seed, this object is most effectually accomplished by ploughing land of every description with a furrow-slice about seven inches deep, and which, if about ten inches and a half broad, raises the furrow-slice with a proper shoulder; thus endeavouring to form, by the shoulder of each furrow, the angle 45, the point which ought to be referred to when determining between the merits of different specimens of ploughing. This is best obtained by allowing the plough to incline a little upon the left side, and making the breadth of the furrow always bear a due proportion to its depth, which is about two-thirds, or as six deep and nine broad.

2. In regard to the proper time for ploughing either light

or clayey soils, it is a proper maxim, that light land should be ploughed when it is in a moist state, but clays in a medium state, neither wet nor dry.

3. In preparing land for a crop, water-furrowing is a very important operation, more especially in wet soils and climates; indeed, not only are these water-furrows or surface-drains made and dressed by the plough, but a *spade-man* is also employed in all the well-cultivated districts of Scotland to clear them out as soon as the ridge is seeded; the land is thus never injured by surface-water.—*Sir John Sinclair's Account of the Husbandry of Scotland.*

Of Draining.—I shall now state a few observations respecting the draining of land. "Lay your land dry, whatever may be the method pursued, or the expense to be incurred, before you attempt any thing else," was the maxim of the celebrated Arbuthnot, and is the basis of good husbandry. In discussing this important subject, it is proposed briefly to touch upon the following points:—1st, The nature of the open drains made in Scotland; 2d, Of under-drains; 3d, Of Elkington's mode of draining, as practised in Scotland; 4th, Of ponds made from drains; 5th, Of the obstacles to drainage in Scotland; and, 6th, Of the advantages which have been derived from draining.

1. *Of open Drains.*—In the Carse of Gowrie the large drains near the river are from fifteen to twenty feet deep, and that valuable district has thus been rendered completely dry. On the subject of clay soils, Dr Coventry has well observed, "that a complete drainage is absolutely essential as the first and fundamental step to their improvement. For which purpose it is necessary to make proper ditches, open drains, or water-courses, and to keep them clear." It is farther asserted, that in most of the central countries of England, and also in Flanders, where the soil is stiff and retentive, "the general mode of drying land is by ploughing it up in high and broad ridges, from thirty to forty feet wide, with the centre or crown three or four feet higher than the furrows. As clay is perfectly impervious to water, surface-draining is the only means by which this species of improvement can be accomplished, and all over the Carse of Gowrie this operation is extremely simple."

2. *Of Under-Drains.*—It is remarked by Mr Johnstone, "That the depth of all under-drains must be sufficient to prevent the impression of the feet of cattle from affecting the position of the materials used in filling them. If, by going thirty inches down, a tenacious soil is not too deeply

entered, a greater depth in a more porous one is," he thinks, "not only requisite, but ought to be greatly preferable." Mr Donaldson observes, that covered drains differ almost in every district, and not less in their size and form than in the materials of which they are composed. The materials used in the formation of drains are bricks, freestone, landstone, wood, sod, peat, straw, heath, broom, brushwood, and black thorns. Of all these the last has been preferred by Richard Preston, Esq. of Blackmore, as the best material for filling drains.

Some fields are so ill situated in regard to outfall, or descent for drainage, that it is not possible to free them from water either by open or covered drains. If, in a field so situated, the farmer can discover a substratum of sand or gravel in any part of it to which, by opening a drain, he can conduct the stagnated water, and if he will there dig a large pit, the evil may be removed, as the water will sink rapidly through the stratum of sand or gravel; then let the pit and drain be filled up with stones collected from the land; and the improvement will not only be effectual but permanent. To obviate the risk of an additional eruption of water, a trial with the borer should be made before the pit be dug, and if a spring should rise, the bore may be closed, and a trial made in another place.

3. Mr Elkington observes, "That when the drain is to act as a conductor for the water to be brought up by the borer, where the soil is all clay, its depth may be only three feet, as this will be sufficient to allow a proper thickness of earth above the stones laid for the conduit at the bottom." Mr Richard Parkinson states, "That he has seen a drain in ground apparently very wet on the surface, cut to the depth of three and even four feet, and several hundred feet in length, without any water being collected by it; and when the borer has been applied, and holes put down at six yards apart, and eight or ten feet deep, a considerable and lasting stream of water has been procured, having the effect of laying the land dry, and rendering it productive." The same author states the following fact, which shows the use of the borer in letting down water into an inferior open stratum:—"In Yorkshire the water of a colliery had for several years been raised from the depth of about sixty yards by a steam-engine, but the proprietors having occasion to bore down to the depth of ten yards farther,—the men employed boring from the bottom of the pit next the engine-pit; and when they had bored to the above-mentioned additional

depth, and taken out the rods, the water which usually ran across the bottom of this pit to the engine-pump, ran down the hole they had just made, through which it afterwards continued to escape, which rendered the engine useless. Hence it may be justly inferred, that the borer is of great use in both raising water and letting it down." It is remarked by Sir John Sinclair, that this system has answered completely in various parts of Scotland in draining fens and boggy land, by perforating through a retentive to a porous substratum. This mode may also prove very useful in the draining of marl-pits. If the ground where the marl lies is of considerable extent, it will require several pits to carry off the water. In many cases the water may be got rid of in a still easier manner, provided the surrounding bank declines on the opposite side lower than the water, by casting a drain into it, and boring with a horizontal auger into the tail of the stratum containing the water, it will thus be drawn off, and reduced to a level lower than that of the bed of marl. To these statements in favour of this system of laying land dry, I shall add the two following specimens of draining which came under my own observation during last harvest (1826). On a farm belonging to the Right Hon. Lord Gwydir, possessed by Mr James M'Rosty, at the Mill of Strageath, parish of Muthill, there is a large level field lying upon the south bank of the river Earn, which field, notwithstanding of its having the protection of a considerable embankment, is sometimes overflown by the high rising of the water. When this takes place, although the embankment prevents the great body of the water from making encroachments on this field, yet in such cases it must also be obvious, that it will be the mean of retaining that part of the flood which has thus overflown its height. The mode employed by Mr M'Rosty in taking off the water thus collected (without cutting or destroying the embankment), is, by introducing a large tunnel through the dyke of the mill-dam, and carrying it into the tail of the water within the embankment, through which tunnel the water is conducted and discharged into the centre of the river, below the level of its surface.

The other specimen alluded to is on a farm belonging to Sir David Moncrieff, possessed by Mr John Scot, at Mill of Gask. On which farm there is an extensive field, lying above the dyke of the mill-dam, which formerly was very wet, from its receiving water from the springs contained in the rising ground on the north, and from its being liable to flooding from the river Earn on the south. To remedy both of these evils, Mr Scot has dug a deep and wide ditch along the south side of the field, at a proper distance from the river, to which it serves partly as an embankment, while at the same time it answers completely as a main open drain for receiving the water collected, either from the field, or from the overflowing of the river. This water is discharged through the medium of a tunnel in every respect similar to the one already described, leaving the land dry and productive.

4. Sir John Sinclair observes,—" That Mr Robertson of Ladykirk has adopted an excellent plan in carrying on his drains, by making ponds of pure and excellent water from the conductors in every field, entering and leaving the ponds continually, and very far preferable to any standing pool."

5. In many parts of the kingdom there are two obstacles which come in the way of draining; the first is the want of stones; the second is the shortness of the leases. To remedy the first obstacle, thorns and brushwood should be used; to remedy the second, if the leases are not to be lengthened, the proprietor should cut the drains, *and the* tenants should fill them up.

6. The advantages of draining are many. By it the land is made free and tender, so that less labour prepares the ground for the crop, less seed and manure is necessary, and a more abundant crop may be depended upon in all seasons. By drainage, land that was not valued at 5s. per acre, has been made worth from L.4 to L.5. Could money, labour, skill, or industry, be more usefully employed?

ON IRRIGATION, OR THE METHOD OF IMPROVING LAND BY FLOODING IT WITH WATER.—This mode of improving land was practised in England so early as the days of Queen Elizabeth, and probably was introduced from Italy, where it had long been successfully executed. It has been tried in Scotland to a considerable extent on the estates of that excellent nobleman, the Duke of Buccleuch, and though the improvement made in consequence has not been so great as what attended similar attempts in England, yet a benefit has been derived sufficiently extensive, not only to defray the expenses incurred, but to afford a handsome return to the occupiers. On these matters we are furnished with much useful information by the Rev. Dr Singer, Kirkpatrick-Juxta, who, in his Report to the Highland Society of Scotland, concerning the watered meadows on or near the rivers Esk, Ews, Teviot, Ettrick, and Yarrow, describes the several operations of watering, and the benefits which follow, in a satisfactory manner.

In behalf of the system of watering, the following arguments occur, which, it is hoped, will be admitted to be well-founded :—

1st, There is an increase in the quantity of hay, which enables the farmer to sell part of it for money.

2d, If the farmer prefer wintering cattle, he may support a greater number, or he may feed them in a more liberal manner.

3d, The additional hay raised increases the quantity of farm-manure.

4th, The pasturage of these meadows, after the hay is removed, is generally found to be so profitable as to balance the original pasturage of the meadow grounds throughout the year.

5th, To feed sheep, the hay of these meadows is of importance, so far as it saves the expense of snow-retreats, which, for these numerous stocks, are now hardly to be obtained.—*Brown's Rural Affairs.*

As to the particular mode of forming an irrigated meadow, I would refer my readers to an essay on that subject, published so late as August, 1826, by Mr George Stephens, drainer, who has had more than twenty years' experience in the practice of irrigation, in England, Sweden, and Scotland, and who is at present employed by the Right Hon. Lord Gwydir, and other spirited noblemen in this country, in forming meadows.

Mr Stephens remarks, that "it is obvious to the most superficial observation, that the banks of rivers which are *overflowed* occasionally, and the places contiguous to springs, over which their waters continue to flow, are ever covered with a conspicuous verdure of the sweetest grasses; while *stagnant water* converts the land on which it lies to marsh, productive of nothing but coarse and unpalatable aquatic plants.

"To imitate this process of nature constitutes the leading principle of the art of irrigation. Water is brought over the lands in a constant current, so gentle as not to endanger the tearing up of the soil, and at same time is all discharged, so as to permit none of it to become stagnant; and to gain these purposes, the land must all be formed into a proper shape, both for admitting and discharging the water."

From the many examples given by this practical author, as to the profit and advantages to be derived from irrigated meadows, I shall state the following few:—"Kirkhouse-meadow, in the parish of Traquair, contains nine Scotch acres, and was the first scientifically-formed meadow in Scotland; the land in its original state was valued at 5s. per acre of yearly rent; the formation cost L.4 per acre; but the hay-crop for the last twenty years has averaged 260 stone per acre, and the after-grass 12s. per acre, making upwards of L.7 per acre of gross produce."

In 1815, Sir George Montgomery, Bart. of Magbiehill, in Peebles-shire, made the lowlands at the Plewlands into irrigated meadows; they contain nine acres, worth L.2 per acre in their original state; but by this improvement the hay and after-grass of each acre is worth L.11.

Alexander M'Laurin, Esq. of Broich, was the first who collected the common-sewer water of Crieff for irrigation: his meadow is regularly laid into catch-work beds; the soil is very porous, with a gravel subsoil; the supply of water is very little, which makes the management the more difficult; yet, when properly attended, the crop of hay is generally from 350 to 400 stones per acre.

Mr William Graham, a well-known maltster in Crieff, has for several years past carried a part of the common-sewer water of that town over a valley 150 yards wide, in wooden troughs supported on pillars upwards of twenty feet high, and with the assistance of plough-furrows, so effectually manured a ploughed field of eight acres, that it requires no other kind of manure.

The whole expense of keeping up the troughs, drawing the plough-furrows, and distributing the water, is not more than L.2 per year,—a very cheap manuring indeed for eight acres of land.

Below Edinburgh there are about 150 acres of grass-land laid into catch-work beds, and irrigated by the common-sewer water of that city. The grass is let every year by public auction, and generally brings from L.24 to L.30 per acre. In 1826, part of the Earl of Moray's meadow brought as much as L.57 per acre.

Autumn and winter, when water is most abundant, is proved to be the proper time for irrigation.

The examples enumerated prove that no one should be discouraged from putting the method into execution.

The success of improving land in this country by irrigation is sufficient to warrant an experiment in the most unfavourable situations, the result of which must triumph over every prejudice.

CHAPTER II.

SECTION I.

OF LIVE STOCK, INCLUDING NEAT-CATTLE, HORSES, SHEEP, AND SWINE.

It is justly observed by the celebrated Mr Lawrence, in his General Treatise on Cattle, that, " At the head of the domestic animals, in point of general utility, stands the *genus Bos*, by us commonly styled *Neat*, or the larger horned cattle, and sometimes *Black Cattle*. In point of utility and profit, no animal can stand in competition with the cow. Her milk, so indispensable to civilized man, is her most valuable product. Of this real liquor of life, more valuable than the richest wines, the cow will give the amount of many times her weight in the course of a year, and every year that she continues in a constant state of reproduction, unto the end of life, when her last gift to man is food of the most substantial kind.

" The flesh of the ox, whether for immediate use or preservation, has been too often celebrated to bear a new description. His tallow contributes to double the number of our days; his joints give us oil; his hide leather of the strongest kind; his hair helps to cement the walls of our dwellings; of his horns are made spoons, combs, and toys; of his teeth buttons; his bones are a cheap substitute for ivory, and their ashes serve to refine silver; his large full eye is instrumental to the discoveries of the anatomist; his blood, gall, and urine, are of account in manufacture, medicine, and manuring the soil." The same author observes, " that, as a labouring animal for agricultural purposes, he is on the whole far superior to the horse."

The species of neat-cattle, of course, varies in different climates and countries, from the influence of various operating causes, the attempt to develop which would be a matter rather of curiosity than of certainty and real use. Hence, in concord with these observations, we shall confine our attention to the specific characters, advantages, or disadvantages of the breeds most approved of in Britain; the best mode of rearing and improving live-stock; the diseases to which they are liable; the cures prescribed, with their general effects. Of these things in their order, as they have been stated by the most celebrated, extensive, and experienced breeders in both Scotland and England.

And, first, of the *Wild Race*, which is generally understood to be the original race of this island. The *specific characters* of which are as follow:—" Horns white, tipped with black; colour invariably white; ears, internally and externally, from the tip downwards, about one-third red; black muzzles. *Peculiar Advantages or Disadvantages.*—Flesh very fine, and of excellent flavour. In 1808 this breed was only to be found in Chillingham Park, in the county of Northumberland.

" *Devonshire Breed.*—This breed is descended from the wild race. The *specific characters* are,—Horns of a middle length, bending upwards; colour light-red, with a light-dun ring round the eye; thin face; hips wide; and thin skin. This breed of cattle is most admirably calculated for draught; though rather small in point of size, they amply compensate for that defect by their hardiness and agility: they fatten early.

" *Dutch, or Short-horned Breed.—Specific characters* of which are,—Hides thin; horns short; little hair; colour red and white, nearly equally mixed; tender constitutions. They possess, however, the valuable property of fattening kindly, and yielding large quantities both of milk and of tallow.

" *Lancashire Breed.—Specific characters.*—Long horned; hides firm and thick; hair long and close; necks thick and coarse; colours various; hoofs large; fore-quarters deeply made; hind-quarters lighter than those of other breeds.—*Advantages or Disadvantages* peculiar to this breed.—Constitution hardy; milk less in point of quantity, but the cream is of a richer quality than that of other species of neat-cattle. Of this breed there is a variety known by the name of *Dishley*, which is descended from that kind selected, improved, and recommended by the late Mr Bakewell. They fatten kindly, and in a little time, upon the most valuable points, though yielding but little milk for the dairy, and producing little tallow."—*Complete Grazier.*

I shall now give a few hints respecting the principal Scotch Breeds of Droving Cattle, among which are the Aberdeenshire, and the Angus or Forfarshire, which are nearly as large as some in England; but those which are chiefly preferred by English purchasers are,—the *Galloway*, the *Fife*, the *Argyle*, the *Kyloes* or *Western Islanders*, and the North Country cattle. Respecting the Galloway or polled cattle, Mr Parkinson observes, that "they are remarkable for the fineness of their shape and facility in fattening; they are at all times easily kept on any rough grounds, such as woods and plantations that are grown up." It is remarked by the author of the Complete Grazier, that of this breed there is a variety termed the *Suffolk Duns;* they are also without horns, small-sized, very lean, and big-bellied; colour a light dun. They are well calculated for the dairy, and yield abundance of rich milk.

The Fife Breed is considered by Mr Parkinson to be among the best breeds that Scotland produces. It is said to have been originally carried from England, and to have accompanied an English princess (Margaret, the wife of James IV.), when she went to Falkland in Fife, which was that sovereign's favourite residence.

The Argyle is the largest of the true Highland breeds, and is much approved of by many excellent judges.

It is observed by Mr Lawrence, "That the Duke of Argyle ranks first as the great herd-master of the north, and the west Highland cattle of his Grace give the fashion, and meet a preference at all markets." Respecting the Highland breed, or kyloes, it is stated, by the author of the Complete Grazier, "That they are eminently calculated for cold mountainous situations, having their hair long and close." The same breed is denominated, by Mr Cully, as hardy animals, in possession of all that extensive and mountainous country called the Highlands of Scotland, together with the western isles.

There is a variety of this breed, termed the Isle of Skye, or western kyloes, which were much admired by Mr Bakewell (a celebrated and very experienced breeder), on account of the excellence of their shape. They are said to be superior to the Highland race above described for quick fattening.

"*The Northland Cattle*, from Inverness, Ross, Sutherland, and Caithness, are also small-sized. They are remarkable for the delicacy of their flesh and fat, and for their meat being well marbled. There are but few breeds that pay better for the time and sort of food they will fatten upon than these do. The Orkney isles produce a small ill-shaped breed of cattle, which are both good milkers and excellent beef."—*Lawrence on Cattle.*

To these remarks respecting the various breeds which have come under our notice, I shall now add the principal qualities requisite in the form or shape of a bull for the grazier, as they are described by Mr Richard Parkinson, which are as follow:—

"He should have a small mouth with thin lips; a quick sprightly eye; ears thin and fine at the ends, not much covered with hair; small horns, hanging downwards in a circular manner, of a yellow colour, chequered with red spots, and standing low on the crown; the head not looking coarse or large, but resembling that of a deer, as all fineness about the head denotes a great inclination to fatten; his neck, near to the head, fine both above and below, but gradually thickening until it joins the breast and shoulders. What is termed the neck-vein should be very full; the upper part, called the withers, broad and strong, and well-fleshed where it joins the chine, which is a certain criterion; for any animal being fat in its upper parts, the neck in length should bear a proper proportion to every other part of him, be grown well out of his shoulders, and appear lofty, his head standing up with very little dewlap, or indeed loose skin on any part. His breast should be broad, and put forewards at the *point or end*; the top part of his shoulder likewise broad, and a little higher than his loins and rump, rising gradually, for a small rise in that part gives more weight of fine flesh. From the top of the head to the tail should be nearly straight, the little rise on the upper part of the chine excepted; the back broad, so as to carry the greatest weight on all his fine parts; the ribs standing out round from the chine, but not in the extreme, nor should they be broader below than at the top, but forming a proper depth on the sides, and the rib should be near the huck, so as not to show a hollow even with an empty belly. The huck-bone should be globular at the end, standing a little higher than the ribs or the rump, which latter should be long and level with the back and ribs, carrying width near the tail; the two bones on each side of the tail, by some called the tut-bones, should be about two inches lower than the tail, and not far asunder. The highest part of the tail should be about one inch higher than the chine at the rump; and the upper end of the tail, joining the rump, of considerable thickness, but tapering downwards, so as to become very small at the bottom. The thigh should be well covered with flesh, so as to form a good round or buttock of beef, but not so fleshy on the outside as to be what is termed *Dutch-thighed*. The hide ought to be elastic to the feel, like buck-leather, rather thick than thin. His walk should be light and nimble, moving with his hind feet nearer to each other than his fore feet, not showing much light between his thighs. The hair should be long and soft, and in colour dark-brown. The carcass, taking a side-view, should appear long, with small shoulders; to be of great length from the back of the shoulders to the tail, the body deep but round, not showing hollows or weak places in any part; great shape being required in the ribs of all animals, which ought, from the first to the last, to extend one a little farther out than the other."

The same author describes the shape of the cow proper to fatten; the marks of which, so far as they relate to the head, hide, and general figure, are much the same as those already stated. Of the cow, he states, that "The flank is a part of much consideration, and the more it is thrown out in width the better, being in some measure round, but deep, for there is a material difference between a deep-ribbed beast and a gutty one; those termed gutty are wider below than above, whilst the proper shape in the body of a beast is to be wider above than below, so as to carry the greatest weight upwards in its fine parts, consequently the shoulders of a fattening beast cannot be too small, nor is the animal ever too long, if one part bear proportion to another. The neck, although it should be fine and thin at the back of the horns, ought soon to become thicker, so as to be very thick in every part joining the shoulder; there is nothing in which the cow for milk, and the cow for fattening, vary more than in this, as the cow for milk cannot have too thin a neck. The horns of all beasts ought to be small, let their length be what it may. As to colours, dark ones in every kind of cattle denote hardiness, but not always the quickest feeders." It is presumed that, whatever be the breed or kind intended to fatten, the form or shape, as given above, is essential to all.

We shall now turn our attention to the history and extent of the dairy in Scotland,—describe the dairy-breed of cattle, the mode of rearing, feeding, and treating them.

History and Extent of the Dairy in Scotland.—The art of making milk into cheese was only introduced into Scotland by the Romans. Pliny, in his Natural History, book 28, chap. 9, says, "Of milk butter was made, which is the most delicious food of barbarous nations." And Strabo, book 4th, page 200, says, "Some of the ancient Britons were so ignorant, that, though they had abundance of milk, they did not understand the art of making cheese." Though something in the form of butter and cheese has been made in Scotland for many centuries past, yet it is only within the last forty or fifty years that attention began to be paid to these operations; the cleanliness which is now observed among all ranks, in comparison of what was done formerly, has no doubt made great improvement on every part of dairy-produce. In former times the cream was always separated from milk that was to be made into cheese; but some of the inhabitants of the county of Ayr began many years ago to make cheese of milk as taken from the cow, generally termed full-milk, or Dunlop cheese. This practice is now introduced into many of the other counties of Scotland.

Dairy-husbandry is suited to every species of land except wastes that are not reclaimable; hence, wherever waste lands are cultivated the dairy ought to be introduced. Grass, turnips, and potatoes, the best food for milch-cows, may be raised where grain cannot be depended on.

The Dairy-Breed of cows in the county of Ayr having attained a degree of celebrity equal, if not superior, to any in North Britain, are alleged by some to have come from Holland, while others have ascribed unto them an English origin. Though it be not certain whence these strangers came, it is well known that they were introduced by gentlemen into Ayrshire, about the year 1790. Mr Ralston carried the dairy-breed and dairy-husbandry into the parish of Kirkcolm in Galloway in 1802; and so obvious were the advantages of that mode of husbandry, compared with merely rearing cattle for the English market, that, in seven years after their first introduction, there were forty dairies established in that single parish, and many more in other parts of Galloway and Dumfries-shire. They are now introduced and fast increasing in almost every county both of Scotland and England. As it is only hints that such an epitome as the present can embrace, I now come to state the shapes most approved of in the dairy-breed, which are as follow:—

Head small, but rather long and narrow at the muzzle; the eye small, but smart and lively; the horns small, clear, crooked, and their roots at considerable distance from each other; the neck long and slender, tapering towards the head, with no loose skin below; shoulders thin; fore-quarters light; hind-quarters large; back straight, broad behind, joints rather loose and open; carcass deep; pelvis capacious and wide over the hips; tail long and small; legs small and short, with firm joints; udder capacious, broad and square, stretching forward, and neither fleshy, low-hung, nor loose; the milk-veins large and prominent; teats short, all pointing outwards, and at considerable distance from each other; skin thin and loose; hair soft and woolly; the head, bones, horns, and all parts of least value small, and the general figure compact and well-proportioned.—*Farmer's Magazine, vol. XIII. p. 57.*

Wilkinson gives the marks of a beautiful cow in the following lines:—

She's long in her face, she's fine in her horn,
She'll quickly get fat, without cake or corn.
She's clear in her jaws, and full in her chine,
She's heavy in flank, and wide in her loin;
She's broad in her ribs, and long in her rump;
A straight and flat back, with never a hump.
She's wide in her hips, and calm in her eyes;
She's fine in her shoulders, and thin in her thighs;
She's light in her neck, and small in her tail;
She's wide in her breast, and good at the pail;
She's fine in her bone, and silky of skin;
She's a grazier's without, and a butcher's within.

To these outward marks may be added a gentle disposition, a temper free from any vicious tricks, and perfectly manageable on every occasion.—*Loudon, p.* 960.

Mode of Rearing and Treating Dairy-Cows.—It is of the greatest importance for dairy-cows to be fed, from their earliest days, on food that has a tendency to produce the milky secretion, and even to be fed on that food when they are not giving milk. Hence, whatever be the quantity of turnip raised, they ought to be served out in equal portions to the dairy-stock daily through the winter and spring; and potatoes, malted grain, or some other substitute, when they fail. Cows should not be put to the grass till it yield them a full bite; and, whenever the weather becomes hot, and the grass begins to fail, they ought to be kept in the byre, and fed on cut-grass, from six o'clock in the morning till six in the evening, and then turned out to pasture for the other twelve hours.

To render dairy-cows docile and quiet, they ought to be gently treated, frequently handled when young, and never hunted with dogs, beat, or frighted. It is by a proper mode of feeding and treatment, more than by any other thing, that a calf is formed into a dairy-cow or into a rough beast. In a word, those who wish to rear and keep a dairy-breed in any thing like perfection, must provide them with abundance of such food as is suited to the production of milk; and they must supply them with such food at all periods of their existence. The old saying will always hold good, "A cow gives her milk by the mou."—*Farmer's Magazine.*

It is remarked by William Aiton, Esq., that "The first produce of a dairy-cow is her calf, the next is the milk she yields, and ultimately her carcass; the mode of managing these may be shortly noticed. The calves that are not needed for the stock are turned over to the butcher; some of them are fattened from a week or two to three months or more. The fattening of calves, to a certain extent, brings a better return for the milk so applied than it can do when made either into butter or cheese. In 1815 Mr Strang of Shawton fed a calf to the gross living weight of *thirty-five stones*, of sixteen pounds per stone, and sixteen ounces per pound. There were two calves killed in the Hamilton market in the end of last year (1826), that weighed each of them fourteen stones, imperial weight, of saleable veal, in the four quarters. The mode of feeding is simple and easy. The calves are not allowed to suckle, but are taught to drink their milk from the dish with an artificial teat or the finger of the dairy-maid put into their mouth under the surface of the milk in the dish. They are fed twice a-day, and get nothing but milk from the cow. Out of many these are a few instances, sufficient to show to what perfection the feeding of calves has been brought in the western parts of the county of Lanark."—*British Farmer's Magazine.*

The Milk of Dairy-Cows, which forms by far the most valuable part of their produce, is used in various ways; 1. For feeding calves, as now described; 2. As human food; 3. It is formed into butter, and butter-milk; and, 4. Made into various species of cheese,—respecting the making of which I shall here insert the following receipt:—

RECEIPT FOR MAKING CHEESE IN IMITATION OF DOUBLE GLOUCESTER, BY JAMES BELL, ESQ., WHOSE CHEESES OF THIS VARIETY WERE FOUND ENTITLED TO THE FIRST PREMIUM GIVEN BY THE HIGHLAND SOCIETY OF SCOTLAND IN 1824.

It is material to have good rennet made from calves' stomachs, properly cured, for curdling the milk, the method of doing which is known to every farmer's wife.

The milk immediately from the cows must be put through a strainer into a tub sufficiently large to hold the quantity of milk required for the cheese intended to be made.

Put first into the milk a quantity of the finest cake arnetto, which is manufactured in London for the purpose of colouring cheese. This is done by tying it in a piece of thin muslin, and immersing it in the milk, and shaking it till the milk is tinged to the colour you wish your cheese to be. (The quantity used in the specimen produced is noted below.)

Pour into the milk a sufficient quantity of the rennet to coagulate or curdle it, but not more, and allow it to stand till the curd is quite formed, when it may be cut or broke with a knife, and the whey taken out with a skimming-dish. The curd must be made firmer by degrees, taking out the whey by pressing it with the hands into one side of the tub. (This operation is pretty severe exercise for two stout dairymaids, who, of course, require to have their hands and arms washed clean.)

After this operation the curd is cut in pieces of about an inch square and put into a linen cloth, then put into a large wooden drainer, which has a cover of a size to go within the drainer. A weight of about half a cwt. must then be laid on the top of the cover, which presses the curd moderately.

After remaining fifteen to twenty minutes, take the curd out, and cut it again into similar pieces, or rather smaller, putting it again into the drainer, and press it as before. Take it out again in about twenty minutes, repeating the same process as before. Take it then out of the drainer, and put it into a tub or vessel, and cut it as small as birds' meat, with a knife made for the purpose, having three blades, which facilitates the operation.

The curd is then salted with the best salt, and well mixed, as much as is considered necessary. It is then put into a cloth of thin gauze made for the purpose, and put into the chesset or chess, and that into the press, taking it out from time to time, and giving dry cloths, till, by the pressing, the cloths come off quite dry, which is the rule for knowing when it is enough pressed; but it is perhaps an advantage to have so many presses as to allow the cheese to remain two days or upwards. If the last cloth is of a finer texture, and dipped in warm water, wringing it before putting it on the cheese it will give it a finer skin.

It has been omitted to state, that while the curd is pressing in the drainer, it ought to be set before a good fire, and also, after putting it into the chesset, it ought to be placed then, for twelve or fifteen hours, with about ½ cwt. on it, previous to putting it into the cheese-press.

The cheeses, after being taken out of the press, should be laid on a tolerably dry floor or shelves, the former perhaps preferable, so as not to dry them hastily. They ought in the first instance to be turned daily, and rubbed with a dry cloth. After becoming firm, their being turned and wiped twice a week will be sufficient. It is of great use, to keep flies from coming near the cheese and breeding maggots, to rub the floor or shelves with elder or bower-tree leaves.

The quantity of arnetto used in the specimen produced; one cake of about ½ lb. weight to 10 cheeses of from 20 lb. to 22 lb. each.

The quantity of salt about 8 oz. or 9 oz. ditto.

100 quarts of milk are found to make a cheese of 30 lbs., or about 3 quarts to 1 lb. of cheese.

Leith, 10*th December,* 1824.

DEAR SIR,—I HAVE sent six cheeses of this year's produce, made at my farm at Woodhouselee, Dumfries-shire, in imitation of double Gloucester, marked and numbered as above, to compete for the premium offered by the *Highland* Society. I have given above an account of the operation of making them.

The committee will perhaps be pleased to know, that I commenced the cheese-dairy two years ago on a small scale. Last year I made about two tons, indeed upwards, which were in request, and I sold them rather too soon to a Carlisle grocer, at 58s. per cwt.

This year I have twenty-two cows; have brought up fourteen excellent calves, one of them a bull, for which I can readily get ten guineas. I calculate, and I consider fairly, that these calves, besides the consumption by my family, which, with servants, is numerous, would be equal to the produce of ten cows, which leaves twelve for the cheese-dairy. No distinct account, however, has been kept hitherto; but I intend next season to set aside so many cows for my family, so as to ascertain precisely the produce of cheese from a certain number of cows. I may mention, that my cows are nearly all of the Ayrshire breed, and the calves kept are queys of that breed. For stock I keep the Galloway only, being almost exclusively what are in demand in our district of the country.

I expect a considerably higher price this year for my cheeses than last: they are improved in quality, and the price in the market is already much higher.

The quantity already made weighs 2 ton, 5 cwt., 3 qrs., 4 lbs.; and by the whey have reared, and now fit to kill for curing, 15 large hogs, besides to the extent of about three pounds' worth of milk disposed of, valuing the cheese from the 12 cows, as above, at the rate of 65s. 8d. per cwt. wholesale, and I expect considerably more, the value of their produce will stand thus, viz.:—

2 ton, 5 cwt., 3 qrs., 4 lbs., at 65s. 8d. per cwt.,	L.141	6	4
15 hogs reared at 40s. - -	30	0	0
Milk sold, - - - - -	3	0	0
Suppose yet to make 3 cwt. - -	9	17	0
Equal to upwards of L.15 per cow, -	L 184	3	4

This is considerably more than I calculated upon; but the quantity of produce is correctly stated, and I am inclined to think the prices expected are fair, if not moderate.

It ought to be stated, that the cows have had every advantage in regard to keep; they have been always kept in excellent pasture, with a change, and abundance of grass in the house during the heat of the day.

I may mention, that the specimen produced has been fairly taken from the stock; ten or twelve cheeses were taken from the stocks made in the summer sufficiently dry for carrying. The six produced were pierced and tasted, but the others were found equally good in quality.

Any farther information required I shall be most ready to give, and of course the affidavit required; and I am, dear sir, your's truly, (Signed) JAMES BELL.

To Charles Gordon, Esq., D. Secretary,
Highland Society of Scotland.

SECTION II.

OF THE HORSE.

THE horse is an animal that has at all periods been considered of great utility and importance to mankind, and ranked in the first class of the quadruped kind. The diversities that are known to exist among those useful and elegant animals are extremely numerous. The names by which the different breeds of farm-horses are generally distinguished in England, are,—*The Black Cart Horse, the Cleveland Bay, the Suffolk Punch, and the Welsh Pony.* Of the above sorts the first is in size superior to any other in the kingdom, but naturally slow in motion, clumsy, and frequently ill-proportioned, better adapted for drawing ponderous loads in large towns, than performing any of the other operations connected with husbandry. The second sort, or the Cleveland Bays, are clean, well-made animals, very strong and active, and equally in request for the coach, the saddle, and the plough. The Suffolk Punch, when of the genuine breed, is a short plain-looking horse, very compact, and more active and hardy than any other in the southern parts of the kingdom.

In Wales there are three different sorts, or rather three different sizes of horses, as the Welsh Ponies, the larger breed of the country, and a cross-breed between stallions from England and the country mares. The first are very diminutive; the second sort, though very hardy, are below the proper size; the third are stout, active, hardy, well-shaped, and easily reared.

If Scotland cannot boast of so valuable breeds of farm-horses as England, it may contend for possessing as great varieties. It has *the Lanark* or *Clydesdale, the Garron, the Galloway*, and *the small Highland horses.* Of these varieties the first is said to be the best and most valuable breed of plough-horses in Scotland; the reason of which is ascribed to an adventitious circumstance which happened in that district about the end of the seventeenth century, which was, that one of the Dukes of Hamilton brought over from Flanders six coach-horses (stallions). By crossing these with the best of the country mares, the breed now so well known by the name of the Clydesdale was, it is said, produced.

It is observed by Dr Anderson, that the Lanark horse is well-formed, hardy, well-tempered, and is perhaps the thriftiest horse for cart or plough in the island, perhaps on the globe itself.

The Garrons are said to be the ancient breed of the country-horses, without having been improved by crossing with other breeds. They are a strong hardy race, rather under the middle size, and with due attention might be rendered a very valuable breed for different uses.

Without treating of each of these varieties, I shall now state the following description of a well-formed horse, as given by Mr Culley, an eminent breeder, who observes, that, whatever be the variety of the breed, the form should be this:—"His head as small as the proportion of the animal will admit; his nostrils expanded, and muzzle fine; his eyes cheerful and prominent; his ears small, upright, and placed near together; his neck, rising out from between his shoulders with an easy tapering curve, must join gracefully to the head; his shoulders, being well thrown back, must also go into his neck (at what is called the points), unperceived, which perhaps facilitates the going much more than the narrow shoulder; the arm or fore-thigh should be muscular, and, tapering from the shoulder, meet with a fine straight, sinewy, and bony leg; the hoof circular, and wide at the heel; his chest deep, and full at the girth; his loin or fillets broad and straight, and body round; his hips or hooks by no means wide, but quarters long, and tail set on so as to be nearly in the same right line as his back; his thighs strong and muscular; his legs clean and fine-boned; the leg-bones not round, but what is called *lathy* or flat."

The chief points in a farming cart-horse, in the opinion of the author of the New Farmer's Calendar, are,—"Neck not long, nor too thick; short legs, rather flat than round, and gummy; fore-feet even, not too distant; wide chest; strong, but not high shoulders; considerable length of waist, supported by a wide loin; quarters full, and rather raised; strong muscular thigh; size fifteen hands one inch to sixteen hands high."

The mare which is intended to supply the team with draught-colts should, according to the author of the Synopsis of Husbandry, be large-limbed, close-jointed, short-necked, wide-chested, home-ribbed, with a capacious body her eyes should be clear and full; her nostrils large and open; in disposition gentle and tractable; of a constitution healthy and vigorous. The horse should be bold and spirited; in constitution strong; in disposition gentle. On the qualities of the sire and the dam depends in a great measure the future welfare of the colt.

SECTION III.

OF SHEEP.

The sheep belongs to the class of ruminant animals, or such as chew the cud, and of which there are numerous species and varieties or breeds. Sheep are of the utmost importance to mankind, whether considered in the light of affording food and clothing, or in that of the vast improvement and profit which they produce, in the various systems of management to which they are subjected by the farmer, in situations and upon lands that must otherwise be nearly if not wholly useless

Of sheep, the breeds or varieties that are dispersed over the globe are almost endless. Even in this country they are so extremely numerous as scarcely to be described with any correctness. This being the case, we shall here give a concise view of the most approved breeds of British sheep, as they are characterized by some of the most experienced and eminent breeders.

Of the Teeswater Breed Mr Culley gives the following description:—" The legs are long, finer-boned, and support a thicker and more firm and heavy carcass than those of Lincolnshire; the sheep are much wider on the backs and sides, and afford a fatter and finer-grained mutton. The weight, per quarter, in two-year old wethers, is from 25 lbs. to 35 lbs., and, in particular instances, to 55 lbs. The wool is shorter and less heavy than in that breed.

" *Lincolnshire Breed*.—This breed of sheep is characterized by their having no horns, white faces, long thin weak carcasses, thick rough white legs, bones large, pelts thick, slow feeding, mutton coarse-grained. The weight, per quarter, in ewes, from 14 lbs. to 20 lbs.; in three year old wethers from 20 lbs. to 30 lbs.; the wool from 11 to 18 inches in length."—*Culley.*

The New Leicester or Dishley Breed—Is described by Mr Lawrence as having " A fulness of form and substantial width of carcass, with a peculiar plainness and meekness of countenance; the head long, thin, and leaning backward; the nose projecting forward; the ears somewhat long, and standing backward; great fulness of the fore-quarters; legs of moderate length, and the finest bone; tail small; fleece well covering the body, of the shortest and finest of the combing wools; the length of staple six or seven inches.

The great advantages of this sort of sheep have been stated ' To consist in their producing a greater profit to the farmer, in proportion to the quantity of food consumed, than most others, in their being ready for the butcher in the early part of the spring instead of the autumn, in thriving well on such pastures as would not support other sorts of the same size.' "

Heath Breed.—This is a breed of sheep which is described, by Mr Culley, " as having large spiral horns, black faces and legs, a fierce wild-looking eye, short firm carcasses, from 12 lbs. to 16 lbs. per quarter, covered with long, open, coarse, shagged wool, fleeces three or four lbs. each. They are an active hardy sort, and best adapted of all other breeds to exposed, heathy, and mountainous districts. Seldom fed until three, four, or five years old, when they feed well, and make the finest mutton, having a high-flavoured gravy."

Mr Lawrence supposes " The black-faced Linton, or short sheep of Scotland, to be a variety of the heath-sheep. They have been crossed with the Cheviot breed. Mr Culley recommends a Dishley cross for the use of the low lands; and, for upland situations, Mr Lawrence recommends a Spanish cross, with good winter management, in preference to all others. He thinks it disgraceful to the rural economy of Britain that so excellent a breed of sheep should be needlessly compelled to brave the rigour of the seasons in such loose, ragged, and beggarly clothing, when they might, with a few years' pains, and without any decrease of their carcasses, produce a fleece of high value and consequence to the manufactures of the country."

South-Down Breed.—This is a valuable sort of sheep, which Mr Culley has described as having no horns, grey faces and legs, fine bones, long small necks, rather low before, high on the shoulder, and light in the fore-quarter; sides good, loin tolerably broad, back-bone rather high, thigh full, twist good, mutton fine in grain, and well-flavoured. Wool short, very close and fine, in length of staple from two to three inches. This sort of sheep are hardy, and disposed to fatten quickly; and where the ewes are full kept they frequently produce twin-lambs nearly in the proportion of one-third of the whole, which are, when dropped, well-wooled. The wethers are capable of being disposed of at an early age, being seldom kept longer than two years old, at which age they generally weigh 18 lbs. per quarter. And they are often fed, even at 18 months, which is a very valuable property. They are capable of travelling well, and of resisting the effects of exposure to cold. It is added, that it would be "difficult to point out any part of the island for which this breed would be unfit, while it would be easy to name a vast number of districts where it would be a most advantageous substitute for the native stock."

Cheviot Breed.—This breed of sheep is known by the want of horns, by the face and legs being mostly white, and the eyes lively and prominent; the body long, little depth in the breast, narrow there and on the chine; clean, fine, small-boned legs, and thin pelts. The weight, per quarter, when fat, from 12lbs. to 18 lbs.; the wool partly fine and partly coarse. Mr Culley considers this "A valuable breed of mountain sheep, where the herbage is chiefly of the natural grass kind," which is the case in the situations where these are found the most prevalent, and from which they have obtained their name. It is a breed which has undergone much improvement within these few years, in respect to its form and other qualities, and has been introduced into the most northern districts. The Spanish and South-Down have been advised as proper crosses for this sort of sheep. It is observed by the writer of the Argyleshire Report, that "The Cheviot sheep are in every respect superior to the black-faced kind, and found to be equally fit for a mountainous situation. They have every property that should be sought for in a mountain-sheep, and, accordingly, they have been found to thrive in every part of the Highlands in which they have been tried. They were introduced into the county by the Duke of Argyle, and by Mr Campbell at Auch, in the highest parts of Glenurchay, and found to answer very well."

Merino, or Spanish Breed.—In this breed of sheep the males have horns, but the females are without them; they have, according to Lord Somerville, white faces and legs, the body not very perfect in shape, rather long in the legs, fine in the bone, a degree of throatiness or production of loose pendulous skin under the neck, and the pelt fine and clear. Weight, when tolerably fat, per quarter, in the rams about 17 lbs., in the ews 11 lbs. The wool very fine. It is a breed that is asserted by some to be hardy, and to possess a disposition to fatten readily, but others maintain a contrary opinion.

In the introduction of this breed, his Majesty, George the Third, took the lead, and from his flock a great number of the improvers of it have been supplied in the different sales that have been made since its first establishment. In the sale of 1803, in Kew Lane, under the direction of Sir Joseph Banks, the numbers sold, according to Mr Lawrence, "were

24 shearling rams, which produced the sum of	L.402	9	0
Seven full-mouthed and four toothed rams,	171	13	6
14 ewes, - - - -	118	8	0
Amounting in all, for the 45 sheep, to	L.692	10	6

The highest price of the shearlings was 42 guineas, the lowest L.6, 7s. Of the full-mouthed rams 38 guineas was the highest, and 7½ the lowest price. Of the ewes 11 guineas was the highest, and six the lowest."—*The Complete Farmer, vol. II.*

Of Improving the Breeds of Sheep.—It is necessary to consider with attention the nature and situation of the pastures on which they are to be supported, and carefully to avoid making use of larger or finer breeds than can be properly sustained, as upon due management in this respect much of the success in the improvement of sheep-stock must necessarily depend.

In Argyleshire the principal circumstances attended to by the most intelligent sheep-farmers are these:—" To stock lightly, which will mend the size of the sheep, with the quantity and quality of the wool, and also render them less subject to diseases. In all these respects it is allowed by good judges, that 500 kept well, will return more profit than 600 kept indifferently. To select the best lambs, and such as have the finest, closest, whitest wool, for tups and breeding ewes, and to cut and spay the worst. To get a change of rams frequently, and of breeding-ewes occasionally. To put the best tups to the best ewes, which is considered as necessary for bringing any breed to perfection. To keep no rams above three or at most four years old, nor any breeding-ewes above five or six. To separate the rams from the 10th of October for a month or six weeks, to prevent the lambs from coming too early in spring. To separate the lambs between the 15th and 25th of June; to have good grass prepared for them; and, if they can, to keep them separate and on good grass all winter, that they may be the better attended to, and the better chance of avoiding diseases.

In Linton the following management is observed:—" In summer the flock is divided into three hirsels; in the first are all the hogs and yeald-sheep; in the second the milk-ewes; in the third the lambs. In winter they are kept only in two hirsels; in the one are the hogs, in the other the ewes and yeald-sheep. The lambs are weaned in the end of June, the ewes milked from the 1st of July to the middle of August, and the milk made into cheese. The tups are let to the ewes from the 15th to the end of November, according to the situation of the ground and nature of the grass. In the management of this sort of stock it must be evident that a great deal of the profit must depend upon having a careful shepherd, who perfectly understands his business, and is at all times willing to perform it."—*The Complete Farmer.*

SWINE,—a well-known animal of the quadruped kind, and which, under proper modes of management in respect to breeding, rearing, feeding, and fattening, often affords a good profit to the owner. It is a sort of animal, in some points, of an ambiguous nature, being allied to the *pecora*, or cattle, by its cloven hoofs, and to the *feræ*, or wild beasts, in some degree, by its teeth, yet differing widely from both in many respects. It is consequently supposed to form at once a link between the cloven-footed, the whole-footed, and the digitated quadrupeds. It is well known that the hog is a native of all the temperate climates of the old world, but was not found in America until introduced by the first discoverers, the Spaniards, whose black breed has had a wonderful increase both on the American continent and in the islands. There is evidently much diversity in these animals, in different situations and circumstances, which require to be particularly noticed by the farmer, as it is a point of much advantage in this as well as in all other sorts of live stock, to have a good breed; for it will constantly pay better than those of the more inferior kinds. But, like most other descriptions of farm-animals, they should in some measure be adapted to the nature of the keep, and the circumstances of the management under which the farm is conducted. The chief marks made use of in distinguishing the breeds of this animal are those of the form or shape of the ear, and the quality of the hair. The pendulous, hanging-down, or lop ear, and the coarse harsh hair, are commonly asserted to indicate largeness of size and thickness of skin; while erect or prick ears, show the size to be smaller, but the animals quicker in feeding. And it has been observed, by some of the old writers, that the smooth soft-haired pigs are most suitable for warm climates.

The hog, or swine, to be well formed, should not be too long, but full in the head and cheek; thick and rather short in the neck; fine in the bone; thick, plump, full, and compact in the body; full in the quarters, fine and thin in the hide, and of a full size, according to the sort, whatever it may be; having a disposition to fatten well and expeditiously at an early age.

Varro, as well as Columella, describes what was considered in their time as the marks of a good hog, to be "A small head, short legs, long body, large thighs and neck, and the bristles, particularly on the neck, thick set, erect, and strong."

It is observed, by the author of the General Treatise on Cattle, that "Depth of body, lateral extension, breadth of the loin and breast, proportional length, moderate shortness of the legs, and substance of the gammons and fore-arms, are great essentials. These are qualities," says he, "to produce a favourable balance in the account of keep, and a mass of weight, which will pull the scale down." He adds, however, that "A good hog may have a coarse, long, ugly head and ear, and the thing may be safely classed among the non-essentials."

The Berkshire Breed is much approved of, and has extended itself from the district from which it takes its name over most parts of the island; it feeds to a great weight, and is good either for pork or bacon. This sort is supposed by many as the most hardy, both in respect to their nature and the food on which they are fed. The Berkshire is, however, a sort of hog that requires constant good keep, declining fast under other circumstances.

The Chinese Breed is distinguished by the neck being thick, the body very close, compact, and well-formed; the legs very short and the size small; the flesh delicate, the colours various, as black, white, brown, &c. This breed fattens quickly, and has, in consequence, spread over a great part of the kingdom.

The Swing-tailed Breed is a useful sort of the smaller kind of hogs, that is hardy in its nature, and of considerable weight in proportion to its size.

In respect to the many varieties of swine, it is observed, by Mr Donaldson, "That the Berkshire and Hampshire hogs are the largest; and it is probable that from the former of these the greatest number of varieties now in the country has been derived."

Management of Swine in General.—Sows, after they have had two or three litters, may be killed; but no breeder should part with one whilst she continues to bring large litters, and to rear them with safety. As there are great difficulty and expense attending the rearing of pigs in cold seasons, the farmer should contrive as much as possible to have his litters early in the spring and autumn, as at these periods much less loss will be sustained in the death of the pigs, and less expense incurred for food.

Although it be the common notion that swine are very filthy in their habits, there are probably few domestic animals that are more pleased when they have clean and comfortable beds, and certainly not any on which cleanliness has a more evident effect, so far as feeding, thriving, and fattening are concerned.

In the management of these animals it is of great utility and advantage to keep the different sorts separate and distinct from each other, as the sows in pig, those with pigs, and the stores, according to their ages; as it is only in this way that they can be kept to the most profit and advantage.*

SECTION IV.

DISEASES OF NEAT-CATTLE.

As in the preceding pages I have given a concise statement of the specific characters, advantages, and disadvantages of the various breeds of neat-cattle, horse, sheep, and hogs, most approved of in Britain, I shall now proceed to state, as briefly as possible, a few of the diseases to which each of these classes of live-stock are liable, as also the cures which have been prescribed, with their general effects.

Numerous and weighty are the losses which the farmer, grazier, and cowfeeder, sustain from the improper treatment of cattle when diseased; and perplexing in number, heterogeneous in composition, and pernicious in application, are many of the receipts usually recommended as infallible. The judicious Mr Lawrence, from whom we have already quoted, observes, in his able Treatise on Cattle-Medicine, "That animals living in a state of nature, regulated by the reason and experience of man, would be almost wholly exempt from disease; that their appetites may be held under a constant control; that their diseases result purely from the negligence or erroneous treatment of their owners.

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* Swine are subject to many disorders, but they are so similar to those already noticed in other animals as to render a regular detail of them unnecessary. Most of the complaints of this animal arise from the want of cleanliness. Swine delight in clean litter and a clean sty, and they are never healthy nor thriving where these are neglected.

They are either exposed too much to the rigours and changes of the weather, or they are gorged with food, denied a sufficient quantity, or supplied with such as is unwholesome. Here we learn the chief causes of their maladies; *learn to prevent them*, instead of undertaking the tedious, unsuitable, and hopeless task of learning to cure them. Of all things, let the proprietors of cattle renounce for ever the insane folly of offering premiums for curing incurable diseases. I have no infallible receipts to offer; on the contrary, I wish to impress my readers strongly with the idea, that all *infallible receipts are infallible nonsense*."

1. *Inflammation of the Lungs.—Symptoms.*—This disease generally begins with shivering, loss of appetite, and a striking appearance of anxiety or depression; but the most distinguishing symptom is an increased motion of the flanks, or quickness of breathing. If the disease happens to a milch-cow, she soon loses her milk, and the ears, legs, and horns, are generally cold.

Causes.—This disease most commonly occurs to working-cattle from over-exertion, or from being suffered to drink largely of cold water immediately after working hard, and in a state of perspiration. It may arise also from exposure to cold, or from sudden changes of weather. It is to this latter cause, indeed, that the greater part of the internal diseases of cattle may justly be attributed. It is highly necessary, therefore, to have shelter-yards, sheds, or enclosures, where cattle may be occasionally protected from the inclemencies of the weather; without such accommodation, medical treatment will avail little or nothing.

Cure.—Early bleeding is the grand remedy in this complaint, but it must not be done sparingly. A cow or ox in tolerable condition may lose from four to six quarts with advantage.—*Modern Farrier.*

2. *Inflammation of the Stomach.*—All ruminating animals have more than one stomach; in the cow there are four; the first and largest of these is termed the *paunch;* the second is called the *bonnet* or *king's-hood;* the third the *monyplies;* and the fourth the *caul.* Such a complicated structure renders this organ particularly liable to disease. Inflammation, however, does not appear to occur frequently as a primary disorder, but is more commonly a consequence of some offensive matter lodged in one of the four stomachs, or from the animal's feeding so greedily as to weaken the organ, and prevent it from performing its functions. It is usual to consider this disorder in cattle under two distinct species; one

affecting the first stomach, and the other the third: this latter is commonly denominated *lakeburn.*

Cure.—Should inflammation attack the stomach without any hurtful matter being swallowed, or any improper accumulation of food, the principal remedy will be plentiful bleeding, abstinence from food, and mucilaginous drinks, such as linseed-tea, and the administration of relaxing clysters.—*Lawson.*

3. *Inflammatory Fever.*—This disease is known by various absurd and ridiculous names, such as *Quarter Ill, Quarter Evil, Black Leg, Black Spauld, Joint Felon,* &c.

Symptoms.—When an animal is seized with this complaint, it becomes suddenly listless and stupid, hangs down its head, refuses food, and appears to move with difficulty. Swellings soon appear on the body in different parts, which, when pressed by the finger, make a crackling noise.

Causes.—It frequently happens to young cattle, generally between the first and third year, most commonly about the second year of their age. It appears to be occasioned by feeding them too hastily; by putting them when lean into rich succulent pasture.

Cure.—Bleeding is the first remedy, and must be proportioned to the age and strength of the animal; perhaps from three to four quarts will generally be found sufficient. The blood should always be measured. After this give the following dose:—

Barbadoes aloes, 3 drachms,
Carbonate of potash, 2 ditto,
Sulphate of soda, 6 ounces,
Warm water, 1 pint.

Setons in the dewlap, or other parts of the body, are sometimes applied as preventives of this disorder. Mr Lawrence advises,—"That a piece of short or inferior keep should be reserved as a digesting-place, where cattle may be occasionally turned to empty and exercise themselves." This is allowed to be better than bleeding, or any medical preventive.—*Modern Farmer.*

4. *Putrid Fever or Murrain.*—The most serious epidemic fevers that have ever appeared among domestic animals, are those which, from their violence and fatality, have been called *murrains* or *pests,* and which have raged occasionally from the earliest historical accounts.

Symptoms.—The principal symptoms are shivering and trembling of the limbs, accompanied by sinking of the flanks, difficulty of breathing, and aversion to food. Fever ensues for the first three days, eruptions take place on the limbs, and tumours may be discovered by the touch beneath the fleshy membrane. These various symptoms continue to increase till the seventh, sometimes to the ninth day, when the turn takes place.

Cause.—The cause chiefly assigned for this malady is the turning of the animals into rank grass after long-continued showers, or a rainy season.

Cure.—Various remedies are prescribed for this distemper, the chief of which are, bleeding in the earlier stages of the disease, and the internal use of Peruvian bark, or, if this cannot be obtained, of oak-bark, and good strong beer; or, should these fail, a mixture of bark and burdock, about half an ounce of each, pulverized, may be given twice in the night, for two or three successive nights, in warm water, which will seldom fail to procure relief.

After the disease is removed, fumigate the houses where the distempered cattle were confined.—*Cattle Dealer's Assistant.*

5. *Tail-Worm.*—This disease seems to be a decay in the spine of the back; it is situated at the bottom of the tail, hence the name of the disorder.

The symptoms by which it is known are, when the beast attempts to rise, after making an endeavour, it will drop down again, at first once, then twice, until at length it is totally unable to get up.

Cure.—The remedy is, to cut a piece off the tail-end, and let it bleed; if this be thought disfiguring the beast, slitting the part will equally effect the cure. Farriers open the tail and put in some sort of salve, either through ignorance, or by way of making a bill, there being no necessity for such an application, as a cure has been made by cutting the tail only, after the animal has been unable to rise for several days.—*Parkinson on Live Stock.*

6. *Red Water.*—The most conspicuous symptom is the red colour of the urine, which appears as if it were mixed with blood; when the disease is not checked, the urine becomes of a darker colour, the animal loses strength rapidly, and becomes sunk in the eyes, listless, and without appetite. They seldom live beyond the tenth or twelfth day, unless the disease be put a stop to by proper remedies.

Causes.—Red water is supposed to be produced sometimes by sudden changes of weather, by want of water, or the use of such as is unwholesome. Young cattle are more subject to it than those of more advanced age.

Cure.—Medicines of a laxative quality are the best remedies in this disorder. The following is recommended as a safe and efficacious purge:—

Mix Epsom salts, 4 ounces,
Nitre, 1 ounce,
Whey, or thin gruel, 1 quart,
Castor-oil, 6 ounces.

Should this not remove the disease, give the following drink:—

Alum dissolved, 1 ounce,
Terra japonica, 1 ounce,
Oil of turpentine, 2 ounces.

Others prescribe as a laxative,—

Epsom salts, 4 ounces,
Castor oil, 4 ounces,
Cream of tartar, 1 ounce,

mixed in whey; and after this gentle purge, give the following:—

Tincture of cantharides, 2 ounces,
Rock-alum, 2 ounces.

To be given in a quart of lime-water.

Mr White mentions an experienced farmer who gave his cows, in this disorder, half a pint of the juice of the white-blossomed nettle, which speedily cured the disease.

Bleeding is generally condemned in this disorder. When it proceeds from strains and bruises a laxative may also be given; and, if the injury is considerable, the loins should be fomented with hot vinegar, and afterwards covered with a fresh sheep's-skin.

7. *Black Water.*—Sometimes the colour of the urine in cattle is nearly black, and they are then said to labour under the black water. This affection is not well understood, but it probably is a variety of the last. It is said to be produced by feeding on cold wet food, and that a simple removal of the cattle to a more favourable situation will effect a cure.

Mr Lawrence considers the black water as a symptom of incipient mortification of the kidneys, and recommends bleeding (unless in a cow), cordials, and tonics, such as iron filings, with bark, opium, nitre, in strong beer, if the progress of mortification be apprehended. Mr Lawson remarks, that, if mortification of the kidneys has taken place, which may in general be known by the stinking smell of the urine, all these remedies could produce no effect; and it would be much better to kill the animal at once than be at the expense of time, labour, and medicine, in attempting to effect a hopeless cure.

8. *The Scab, or Mange.—Symptoms.*—This disease is commonly called by herdsmen the *scab*, or scurf; and is thus described in a popular treatise on cow-doctoring:—

Skin stiff, and sits fast to every part of the carcass, as if too small for the body. It makes its first appearance about the head and jaws of the animal, with a scurfy, pale, and dry texture, and the beast begins to scratch against every thing that comes in its way; it then shows itself along the back and behind the shoulders; and, if timely aid be not procured, the animal will tear its skin till it bleeds violently, which ought to be prevented, if possible, as the scabs, which are the consequence of bleeding, much retard the efficacy of the ointment, and the loss of time confirms the disorder.

Causes.—This disease has been sometimes attributed to animalculæ, such as are found in the symptoms of the itch upon the human skin, and analogy seems to be in favour of this idea. It is, however, evidently connected with poor living and want of cleanliness.

Cure.—The following ointment is recommended as useful in this disease:—

Sulphur vivum powdered, 2 ounces,
Elecampane-root do. 2 ounces,

mixed with hog's-lard.

Sometimes internal remedies are applied, such as sulphur and gentle laxatives; and the greatest attention must be paid to cleanliness, diet, and exercise. In all cases the skin should be thoroughly washed with soap and water, both before and after anointing. The animals should always be confined till they are quite free of the disease.

Lice.—Calves are sometimes lousy, if they have been hard kept during winter, by being turned out in severe weather, fed on poor diet, and not kept clean.

The best means of destroying these vermin is by rubbing their hide with an ointment composed of stavesacre, or cayenne-pepper, mixed up with hog's-lard.

The Blain.—This disorder is caused by an angry red push in the skin, very sore and painful; and, in times of infection, it is a sign of the plague. It affects the throats of cattle, producing bladders of wind and water about the root of the tongue, which, if not expelled, grow large and choak the animal.

Cure.—Provide a cane or stick that will bend, long enough to reach the great bag, or stomach, of the cow or ox; then put tow, cotton, or wool, into a piece of flannel-cloth to the size of an egg, tie it to the end of the cane or stick; th done, dip it in tar, and open the mouth of the animal; with one hand take hold of the tongue, while with the other hand you gently thrust the stick, with the tar upon it, down the throat into the stomach; there let it remain about half a minute, for the tar to dissolve and disperse, then draw it very slowly up; repeat this three times, and the animal will be relieved. After having administered this medicine, which has effected a cure in ten or fifteen minutes, take a pint of common salt and put it into a quart-bottle, fill it up with chamber lie, shake the bottle till the salt be dissolved, and give it to the cow or ox: it operates as physic, and is a safe means of preventing fever.

Heaving in Cattle.—A disorder somewhat similar in its first appearance to that last mentioned. This disease arises from eating juicy food, such as green clover, turnip-tops, &c., and wheat-bran will have the same effect.

Though the nature of this disorder differs much from the last, the cure is the same; and as the method of using the medicine has been explained in the cure for the blain, I refer the reader to that article.

Purging, or Skitting.—This is generally occasioned by starving, or low keep, which renders the intestines thin; and when cattle come to better keep they *skit;* by some said to be *rotten.*

Cure.—Put about four ounces of chalk, beaten into a very fine powder, in one quart of the lees of red port, mix them well together, and give it to the animal, and three dozes, one every other day, will in general effect a cure.

Another Cure for Purging.—Take fern-roots, the sort that grows in the fields, a large handful, and boil them gradually in two quarts of sweet milk, until reduced to one quart; give this lukewarm.—*Parkinson on Live Stock.*

In Bowlin's Cow-Doctor, the following receipt is recommended:—

Bole-armoniac, 3 ounces,
Bay-berries, 2 ounces,
Alum, 2 ounces,
Shavings of ivory, 2 ounces,
Powdered comfrey-root, 2 ounces,

boiled in two quarts of skimmed milk, adding, while boiling, a handful of starch. This to be given for a dose. Mr Lawrence recommends, that, on the first appearance of this disorder, the cattle should be taken to the home-fold, and put on dry food, which generally supersedes the necessity of medicine. The same author prescribes the following cure:

—"Boil a pound of fresh mutton-suet, in three quarts of milk, until the suet is dissolved, for a drink to be given warm." Mr Lawson observes, "That, as the affected parts do not immediately recover strength, after the scouring has ceased, the cow should be brought back to her usual state gradually."

The following recipes were received from a man formerly a manager at Mr Richardson's cow-yard, Gray's-inn-lane, London, who was said to keep at one time 999 milch cows:—

To make a Cow cleanse after Calving.—Take two ounces of mur-powder, one ounce of diapaint, one ounce of the tincture of myrrh, and boil them in a quart of milk.

To cure a Cow of the Gargit in the Bag.—Give eight ounces of salts dissolved in a quart of water; this must be repeated three times every other day. Rub the bag well once a day with an ointment made by boiling four ounces of mallow-ointment in a pint of malt vinegar, and draw the paps well three or four times daily.

To cure a Beast of the Maw-bound.—One pound of goose-grease, boiled in a quart of milk, will give immediate relief with one dose.

To cure the Foul in a Beast's Foot.—Take half an ounce of goulard, half an ounce of butter of antimony, half an ounce of the oil of olives, mix them well together, and first cleaning the part with a hair rope, apply this ointment once a day.

To dry a Cow of her Milk without a Drink.—Take four ounces of old tallow, two ounces of bee's-wax, half a pint of vinegar, half a pint of tar, six ounces of the spirits of turpentine, and boil them till thoroughly incorporated; dress the bag and the milk-veins with this composition, and it will turn the milk to water in four days.

SECTION V.

DISEASES OF HORSES.

Preparing ***Medicine.***—Before any medicine be administered to animals, it is necessary to ascertain the nature of the disease, as well as the effect and quality of the drugs used.

Horses' powders are often much adulterated, and should be purchased only from such druggists as have a good reputation. Seeds, when once powdered, soon lose their quality, they should therefore be purchased in their original state. The same rule should be observed in buying roots, barks, and gums.

Surfeits.—Symptoms.—The surfeit assumes a different appearance in different subjects. In some it is indicated by the coat staining, and assuming a dirty rusty colour, and the limbs becoming full of dry fixed scabs; in others by small knots and lumps; while others have no eruption whatever, and appear only lame and hide-bound.

Causes.—This disease may proceed from excessive and immoderate feeding, or hard riding, but it may in general be attributed to a suppression of the insensible perspiration.

Cure.—A slight eruption may be removed by bleeding and diuretics; but, when the horse is in high condition, a purge is the best remedy.

The following proportion will generally suffice:—

Barbadoes aloes, six drachms,
Castile soap, half an ounce,
Ginger, half a drachm,

mixed in a ball with syrup of buckthorn.

The food to be scalded oats or bran mashes. When the purgative has ceased to act, the following ball may be given every night for three or four nights:—

Emetic tartar, 4 drachms,
Asafœtida, 4 drachms,
Ginger, 2 ounces,

to be mixed and divided into four balls.

During the time the horse is under this treatment he should be kept warm and daily exercised. If the scabs do not fall off it will be proper to rub them with mercurial ointment. In case the humours be wet and itchy, that part of the skin from which there is a moist discharge may be bathed with the following lotion:—

Blue vitriol, 1 ounce,
Camphorated spirits of wine, 2 ounces,

in a quart-bottle filled up with water,

This lotion to be applied daily, after first washing the parts with soft soap and warm water.—*Modern Farrier.*

The Mange.—Symptoms.—This is a cutaneous disease affecting the skin, and rendering it tawny, thick, and full of wrinkles, especially near the mane, ears, loins, and tail. These parts generally become deprived of hair, or, if any remain, it stands erect like hog's bristles. The eruptions discharge a thick yellowish fluid, and the horse suffers a perpetual itching, and most of his time is employed in rubbing and biting himself, so that he soon loses his flesh for want of rest and quiet. This disease is highly contagious.

Causes.—This common but troublesome disorder generally proceeds from want of cleanliness, unwholesome food, and a defective perspiration.

Cure.—It is never proper to bleed for this disease. The following internal medicine is recommended:—

Antimony, 8 ounces,
Grains of paradise, 3 ounces.

This finely powdered, and mixed with Venice turpentine sufficient to form the mass into a proper consistence, must be divided into twelve balls, one of which is to be given every other day. During this apply the following ointment every third day:—

Prepared hog's-lard, 1 pound,
Sulphur, half a pound,
White hellebore, 3 ounces.

Mix and add olive-oil sufficient to make a soft ointment.—Those who prefer a lotion to an ointment may use the following, viz.—

Powdered corrosive sublimate, half an ounce,
Spirits of wine, half a pint,
Water, one quart.

To be applied every third day, and on the intermediate days to wash the parts with soft soap and warm water. When a horse is perfectly cured of this disease, his collar, saddle, clothing, or whatever he wore during his illness, ought to be well washed with soap-suds, and rubbed over with the lotion recommended above. The stall-rack and manger should also be whitewashed with quicklime, which in a few days may be washed off with clear water. These preparations should never be neglected.

The Glanders.—*Symptoms.*—This disease, notwithstanding the assertions of old farriers, is totally distinct from the *Farcy.* In the early stage of the glanders there is generally a discharge of a whitish glary fluid from one nostril, which is highly coloured and inflamed, while the other nostril is of a pale flesh colour. When the disease becomes inveterate, the virus is very offensive and fetid, composed of yellow or green colours, and intermixed with red or bloody streaks. After this the bones and cartilages of the nose become eroded by the malignity of the discharge, and the whole frame, particularly the lungs, becomes affected; the respiration also becomes difficult, the discharge profuse, and the appetite decreases; a consumption ensues, and the animal dies. The symptoms of this disease should be attentively observed, and marked with a nice discrimination; as, in some cases of a violent cold, both a great degree of inflammation and a swelling of the glands, and even an ulceration of the nose, may take place, and a valuable animal may be doomed to destruction, under the mistaken idea that he is affected by the glanders.

Causes.—The primary cause of this disorder has never been ascertained, but it prevails most in crowded stables and in large cities. Its ravages are frequently extensive, and sometimes prove fatal to the prosperity of carriers and those who let coaches for hire.

This is an incurable disease, and though some books of farriery are swelled out with pompous recipes for its cure, it is only an imposition on the credulous, and in many cases may be productive of much mischief.

As soon as it is clearly ascertained that a horse has the glanders, he should be immediately removed from all other horses and kept by himself. The rack, manger, and other places which he may have touched, should be very carefully scraped with knives, and well scoured with soap, sand, and boiling water. This operation should be repeated, and then the whole surface of all these parts whitewashed with a thick coat of lime and water. After a few days this may be washed off, and the stable used again with safety.

The keepers of country alehouses should be careful never to admit a horse to bait in their stables which appears to be afflicted by this dangerous disease, as many have suffered severely from a negligence of this kind.

Some farriers succeed in persuading people that they have really cured this disease; but on examination it will be found that these wonderful cures have been effected only in cases that resembled the glanders.—*Lawson.*

Fevers.—Symptoms.—A fever is denoted by great restlessness, and ranging from one end of the rack to another, beating of the flanks, redness and inflammation of the eyes, and a dry and parched tongue: the horse is always craving for water, and drinks often, but little at a time, and his pulse beats full and hard.

Mr Lawrence observes, " That the best criterion of fever in the horse is the pulse. The best situation for feeling it is under the edge of the jaw-bone, where the facial artery passes on to the side of the face. In this situation the artery is covered by the skin only; and as it rests against the bone, its strength or weakness of pulsation may be ascertained with the nicest exactness and accuracy. When the animal is in health, the pulse generally beats from thirty-six to forty strokes in a minute. The pulsation is regular, and the artery feels neither hard nor soft, but perfectly elastic; but when under the influence of fever, the pulse is sometimes increased to more than double its natural number of beats, and the artery becomes frequently so hard and rigid as to resist the pressure of the finger, and to slip aside from under it."

Causes.—A simple fever may proceed from various causes, such as an obstruction of the perspiration, arising from violent exercise, and an exposure to sudden colds or heats, a distension of the stomach, or from any other cause that tends to produce a degree of inflammation.

Cure.—The first part of the cure is copious bleeding. If the horse be strong and in good condition, three or four quarts should be taken, and the bleeding should always be repeated, until an alteration of the pulse takes place, the hardness of the artery be removed, and the yellowish or buffy coat on the surface of the blood become thinner; after which administer the following clyster:—

Marshmallows, 2 handfuls,
Chamomile flowers, 1 handful,
Fennel-seed, 1 ounce.

This to be boiled in three quarts of water, until it be reduced to two; then strain off the liquor, and add four ounces of treacle and a pint of linseed-oil. This clyster should be repeated every other day, and on the intermediate day the following drink should be given:—

Glauber salts, 4 ounces,
Cream of tartar, 4 ounces,

dissolved in barley-water, and a dram of the powder of jalap added.

When the dung is not particularly hard and knotty, a pint of the following infusion may be given four times a day:—

Chamomile flowers, a handful,
Balm, a handful,
Sage, a handful,
Liquorice-root sliced, 3 ounces,
Nitre, 3 ounces.

These ingredients to be infused in two quarts of boiling water. When cold strain it off, and squeeze into it the juice of two or three lemons, and sweeten it with honey.

In the mean time the horse's diet should be light; his drink should be a little warmed, and given often, and in small quantities; his covering should be moderate; his litter kept clean; and when he begins to recover, his exercise should be gentle. Let it always be remembered, that, in every case of fever, bleeding, and clearing the intestines by mild purgatives and laxative clysters, are of the greatest importance; and that all cordial-balls or drinks, while the disease continues, must have very injurious effects.—*Modern Farrier.*

The Staggers.—Symptoms.—This is sometimes and very properly called the *apoplexy*. In some cases the horse drops down suddenly in a state of insensibility, but in general it comes on progressively. In the former case, according to Mr Denny, "the disease is called the *mad* staggers; and in the latter case, when it is denoted by a heaviness and sleepiness in the eyes, and an almost continual hanging of the head, it is termed the *sleepy* staggers.

Causes.—It is difficult to discover the real cause of this disease; but it most generally proceeds from some derangement in the digestive organs. It is sometimes occasioned by blows on the head, so as to cause compression of the brain. Mr Gibson, an intelligent and experienced farrier, attributes this disease in many cases to a stoppage in the stomach and intestines.

Cure.—As soon as the horse is perceived to have this distemper, he should be copiously bled in the neck-vein, which must be repeated if his strength and the nature of the disease require it. After bleeding administer a ball composed thus:

Barbadoes Aloes, 1 ounce,
Calomel, 2 drachms,
Ginger, 2 drachms.

These mixed with a sufficient quantity of honey. Apply also a clyster prepared by mixing three quarts of oatmeal-gruel, three ounces of common salt, and half a pint of olive-oil.—*Modern Farrier.*

The Distemper.—Symptoms.—This is a kind of cold with which horses are affected in the spring. It is attended with some degree of fever, and often a sore throat. Sometimes also it is attended by a cough and a discharge from the nose. But this epidemical disorder varies much in its symptoms, and is found to prevail mostly amongst young horses; sometimes it is infectious and epidemical.

Causes.—This disorder is generally attributed to the effects of cold easterly winds upon animals which are confined in close hot stables.

Cure.—This disease is seldom fatal when judiciously treated, but many valuable young horses have been destroyed by administering heating cordials, which are always hurtful in febrile cases. So soon as the symptoms of this distemper appear, the horse should be bled, the bowels opened by clysters, and, if the costiveness usually attending this complaint continues, a mild purge may be given; this, with diluents, such as water-gruel or bran-water, which should be given plentifully, will be found sufficient to effect a cure. In cases where the throat appears swelled a blister may be applied.

The Cholic or Gripes.—There seems to be no distemper so little understood by the common farrier as the gripes and cholic in horses,—one general remedy or method of cure serving them in almost all cases; but as this disorder may be produced by very different causes, the cure must also vary, otherwise the intended remedy, injudiciously applied, may not only aggravate the complaint, but make it fatal. This disorder may be divided into three different kinds,—the *flatulent* or *windy*, the *bilious* or *inflammatory*, and the *dry gripes*, each of which have their different symptoms, and require different remedies. The symptoms of the windy cholic are known by the rumbling of wind in the bowels. The horse is often lying down, and as suddenly rising again with a spring. He strikes his belly with his hinder-feet, stamps with his fore-feet, and refuses his food.

When the gripes are violent, he will have convulsive twitches; his eyes be turned up, and his limbs stretched out as if dying,—his ears and feet being alternately very hot and cold; he falls into profuse sweats, and then into cold damps; strives often to stale, and turns his head frequently to his flanks; he then falls down, rolls about, and often turns on his back. This sort of cholic may originate from the animal's having been imprudently allowed to drink cold water in too large a quantity when hot, also from eating too greedily of such sorts of food as are prone to take on fermentation, such as new hay, oats, or clover.

In this kind of gripes, the first intention is to empty the straight gut with a small hand dipt in oil, which frequently makes way for the confined wind to discharge itself, and, by easing the neck of the bladder, the suppression of urine is taken off, and the horse stales and gets ease.

The following ball and clyster seldom fail of giving relief in these cases:—

Take of Strasburgh or Venice turpentine and juniper-berries pounded, each half an ounce; sal prunella or salt-petre, an ounce; oil of juniper, one drachm; salt of tartar, two drachms. Make into a ball with any syrup; it may be given whole, and washed down with a decoction of juniper-berries, or a horn or two of warm ale.

It is to be observed, that the horse in these cases should be well rubbed, clothed, and littered with clean straw up to his belly; and the following has been found highly useful in flatulent gripes:—

Take of Venice turpentine, 6 drachms,
Purified opium, 1½ drachm,
Oil of aniseeds, 1 drachm,
Ginger in powder, 2 drachms.

These substances may be formed into a ball, and the strength of it should be augmented by increasing the proportion of the more active materials according to circumstances.

In the *Inflammatory Gripes*, besides most of the preceding symptoms, there are fever, great heat, panting, and dryness of the mouth. The horse also generally throws out a little loose dung, with a hot scalding water, which, when it appears blackish, or of a reddish colour and fetid smell, denotes an approaching mortification. In this case the horse should immediately be bled to the quantity of three quarts, and it should be repeated if the symptoms do not abate in a few hours. Purgative and emollient clysters should be applied till the bowels are unloaded and the symptoms removed.

In the last kind, or *Dry Gripes*, which often arise from costiveness, the horse makes frequent and fruitless motions to dung, which has sometimes a degree of blackness and hardness; he has frequent and quick motions with his tail; his urine is high-coloured, and there is great restlessness and uneasiness. In this case the straight gut should be examined, and emptied with a small hand oiled properly for that purpose, and purging drinks given. The diet for horses in the gripes should be scalded bran, warm water-gruel, or white water made by dissolving four ounces of gum arabic in a quart of water, and mixing it with the water.

From this history and division of gripes, and their different treatment, it appears how absolutely necessary it is that they should be well understood in order to be managed skilfully. It is plain, too, that violent hot medicines should, in every species of this disorder, be guarded against, and given with great caution and discretion even in the first kind of flatulent cholic.—*The Complete Farmer, vol. I.*

Of Worms.—"There is nothing," says Mr Denny, "so destructive to the health and appearance of the horse as worms." They are usually comprised in two divisions, viz. *Bots* and *Ascarides.*

Bots are generally found sticking in clusters to the insensible parts of the stomach. They resemble maggots, and are about half an inch in length, and the same in circumference round the thickest part. They are furnished with two sharp feet from one end of their bodies, by which they retain a firm hold; in some instances they penetrate quite through the stomach. In the months of May or June they leave their position, and, descending the anus, are carried off with the dung. The insect now remains for some time in the crysalis state. When the fly comes out, and the female is properly impregnated, she carefully selects a proper subject (for this fly evidently prefers one horse to another), and deposites her eggs on the inside of the fore-legs and some parts of the shoulders. These eggs are very visible, in the form of little yellow nits, which are fastened to the hair with some kind of a glutinous substance. Whenever the horse bites himself on the legs, from itching or any other cause, some of these eggs enter the mouth, and pass into the stomach, along with the saliva, where they are hatched, and become the bot. It is a most remarkable instance of instinct that the fly never deposites its eggs on any part of the horse which he cannot reach with his mouth.

The *Ascarides* are usually found in the rectum; they are generally white, but sometimes reddish, and in form resemble the eel. They are very troublesome, and expose horses to the gripes, and other irritating actions in the intestines. Mr Gibson observes,—"The signs of worms in horses are various, according to their different kinds."

Causes.—Some have supposed that the bots are frequently caused by confinement in stables and unwholesome diet. Horses which want energy in the functions of the stomach and intestines, or are fed foully, or pampered for sale, are the most disposed to breed the ascarides, to the removal of which a run at grass contributes much. The following prescription is strongly recommended:—

Calomel, 1 drachm,

Aniseeds in powder, half an ounce,
Treacle, enough to make a ball.

This to be given in the evening, and the next morning the following is to be administered:—

Soccotrine aloes, 8 drachms,
Ginger in powder, 2 drachms,
Treacle, enough to make a ball.

Mercury is a favourite remedy against worms. The following appears to be the best mode of applying this powerful and dangerous medicine:—

Quicksilver, 2 drachms,
Venice turpentine, half an ounce.

Rub the quicksilver in a mortar with the turpentine, till no particle of the former appears; then add

Oil of savin, 30 or 40 drops,
Soccotrine aloes powdered, ½ ounce,
Ginger powdered, 1 drachm,
Syrup of buckthorn sufficient to make a ball.

When the horse has gone through a course of mercurial purges, give the following drink twice or thrice a-week, viz.

Chamomile flowers, a handful,
Rue, a handful,
Horehound, a handful,
Liquorice-root, 1 ounce.

But let it be remarked, that no medicine has yet been discovered capable of destroying or bringing away the bots before the regular period, when they quit the horse spontaneously. It is, however, very easy to prevent their propagation by cutting off the hair where the worms are deposited, or by a frequent use of the currycomb or brush. The horse should be kept warm, and have bran-mashes, and water with the chill off.—*Modern Farrier.*

The Grease.—Symptoms.—The approach of this disease is indicated by the horse raising his foot frequently from the ground, and evincing great pain and uneasiness when resting upon it. Swelling and inflammation about the fetlock follows, and which secretes an oily matter of a peculiarly offensive smell. When the inflammation extends to the cellular membrane under the skin, the pain and lameness become very severe. The affected part is soon brought to an abscess, which bursts and leaves a deep ill-looking sore.

Causes.—Heavy horses, with round fleshy legs, are most subject to this disorder, which is occasioned by sudden changes from a cold to a hot temperature, such as the removing of horses from grass to hot stables,—from the too sudden change from a generous to an impoverishing diet. It generally attacks horses in the spring and autumn, and may, in most cases, be attributed to the want of cleanliness and proper exercise.

Cure.—A slight affection of the grease may, in general, be removed by a poultice of boiled bran and linseed powder, constantly applied and kept moist with warm water, giving occasionally a mild diuretic. When the inflammation seems abated, apply the following astringent lotion:—

Alum powdered, 1 ounce,
Vitriolic acid, 1 drachm,
Water, 1 pint;

If the disease is of long standing, or if the horse has had it before, it will be proper to administer a mild purge; but if the horse be weak, the following:—

Soccotrine aloes, 1 ounce,
Castile soap, 1½ ounce,
Powdered ginger, half an ounce,
Myrrh, half an ounce.

Form these into a mass with syrup, and divide it into six balls. This medicine will open the bowels, improve the strength, and promote absorption.

In all cases of grease, exercise on clean and dry ground is of the highest consequence; and if the horse be weak, a liberal allowance of corn, with careful grooming, is of great service.—*Modern Farmer.*

Diseases of the Kidneys.—Symptoms.—The kidney is subject to a variety of diseases and affections which require the most particular attention.

1. *Inflammation of the Kidneys* is indicated by weakness of the back and loins, faintness, loss of appetite, dulness in the eyes, the urine is discharged in small quantities, and as the inflammation increases becomes bloody, and the voiding it more difficult.

2. *A Relaxation of the Kidneys* sometimes occurs without any inflammation. This affection may be distinguished from the above by the urine being nearly of its natural colour whilst the horse remains at rest; but as soon as he is exercised, the discharge of the urine is accompanied with blood.

3. *Inflammation of the Bladder* is attended by the same symptoms as inflammation of the kidneys.

4. *Stone in the Bladder* is sometimes formed. This affection may be ascertained by clearing the rectum of dung, in-

troducing the hand, and pressing it downwards on the bladder, when the stone, if there is any, will be felt.

Causes.—The kidneys may be injured by an imprudent use of diuretics, or by overloading, drawing, or hard riding, and also by fever. The bladder is often affected by the animal being obliged to retain his urine whilst travelling.

Cure.—When it is perceived that the kidneys are inflamed, take at least four quarts of blood, and give the following ball:—

Barbadoes aloes, 4 drachms,
Emetic tartar, 2 drachms,
Castile soap, half an ounce;

and let the food consist of bran-mashes or cut grass, and give a clyster every four hours.

When blood is discharged from weakness of the kidneys, and there appears no sign of inflammation, give four ounces of Epsom salts, dissolved in gruel, every four or five hours.

Inflammations of the bladder are extremely dangerous, and require copious bleeding, which must be repeated according to the strength of the animal. Large clysters of warm water should also be administered, and the following will be a very useful drink:—

Linseed bruised, half a pound,
Boiling water, 2 gallons;

to which add, after being cooled and strained,

Gum arabic, 4 ounces,

which must be previously dissolved in a quart of boiling water. A quart of this mixture may be given every four hours.

It is not usual to cut horses for the stone, nor has any efficient remedy been pointed out for this rare disorder.

Splents.—*Symptoms.*—This disease commonly appears on the inside of the shank-bone; sometimes in the middle, and sometimes just below the knee. It requires some skill and experience to discover the place affected.

Causes.—The splent most generally attacks young horses, and may arise from the legs receiving a violent concussion.

Cure.—The best remedy is blistering, which may be composed of

Cantharides pulverized, half an ounce,

mixed with sweet oil to the consistence of treacle. Cut the hair very close off all round the leg, and rub in the blister with the hand for ten minutes; then tie the horse's head short, lest he blister his mouth, and blemish his leg, by biting it. Firing is also an effectual and approved cure for the splent.

The Ring-Bone.—This is an enlargement of the lesser pastern-bone, near the cornet of the hoof, and in general extends round the fore-part of the foot, in form of a ring, though sometimes it is only on each side a little above the cornet, and then it is termed splinters of a ring-bone. The treatment is the same as in the case of splents, viz. blistering or firing.

The Bone-Spavin.—This disease is usually situated on the upper end of the shank-bone of the hind-leg, either below or on the middle of the hock-joint. Cow-hocked horses are most subject to this affection, which, if not timely removed, may prove incurable. Many absurd and cruel remedies are resorted to in this disease, but the safest and most effectual cure is the application of blisters as before directed.

The Thorough-pin, Blood-spavin, Curb, and Wind-galls, are small puffy swellings, which are in general easily cured by the blistering liniment, or firing.

Lameness in the Hip-Joint.—In this disease the horse drags the leg after him on the toe. The application of the blistering liniment is the best remedy.

The String-Halt, which is indicated by the horse suddenly catching up the hinder-leg higher than is necessary while walking. This disease has always been considered as incurable.

Lameness in the Shoulder.—It is indicated by the horse dragging his toe and moving his leg stiffly in a circle outwards at every step. A fomentation of bran and water, or chamomile-flowers, applied to the lower part of the chest, within the arm, will be found extremely useful, after which use the following liniment:—

Soft soap, 2 ounces,
Spirit of hartshorn, 4 ounces,

stirred and combined well together; then add

Spirit of turpentine, 4 ounces,
Oil of origanum, 1 ounce,
Camphorated spirit of wine, 4 ounces,

mixed and bottled for use.—*Modern Farrier.*

SECTION VI.

DISEASES OF SHEEP.

Sheep are subject to various disorders, of which, however, our limits allow us only to state those of most frequent occurrence; hence we shall briefly remark, that it may be easily ascertained whether these animals are in health or diseased, by their agility and briskness, the clearness of their eyes, which, as well as their noses, are perfectly dry; by the sweetness of their breath, the coolness of their feet, regularity of perspiration, the fine red colour of their skin, soundness and firmness of their teeth, and by the uniform unbroken texture of their wool.

1. Diseases of Lambs.—It sometimes happens that lambs, when yeaned, are apparently lifeless, in which case it will be proper to blow into the mouth and nostrils,—a simple expedient, which has been the means of restoring multitudes of these useful animals.

The Black Water is one of the most fatal maladies to which lambs are subject: the cause is not precisely known, but the disease carries them off very suddenly. The best preventive hitherto known is to keep them on very dry pastures.

The Red Water.—Its symptoms are lameness and a slight swelling of the joints, accompanied with a violent inflammation that spreads over the whole animal, and which, if disregarded, terminates its existence in the course of twenty-four hours.

Causes.—This disorder is produced by too great a quantity of food remaining on the stomach in a crude and undigested state.

Cure.—As soon, therefore, as the disease appears, the lambs should be taken home from grass, be bled, and an emollient clyster administered. Two or three ounces of castor-oil, or as many grains of emetic-tartar, should next be given, and the bleeding repeated if no favourable symptoms appear. This treatment to be continued for four, five, or six days, as the case may require, and during that term the lamb should be fed with milk.

The Skit.—This disease is sometimes divided into *green* and *white*, according to the appearance of the dung.

Cure.—Give a decoction of hartshorn-shavings and finely-scraped chalk, in which a few grains of opium have been dissolved, and keep them on dry wholesome food, in a well-sheltered yard.

The Blood is a fatal malady to sheep, which often die suddenly in consequence of it; in less violent attacks the symptoms are, panting and heaving of the flanks, and standing still. It is produced by feeding on too succulent or moist pastures. The most effectual remedy is bleeding, after which the animals should be turned into a dry pasture, and a mixture of common salt and nitre with bran may be given.

The Fly.—This disorder is chiefly confined to sheep that are continually exposed in hot seasons, particularly in enclosed woody districts. The insects from which the disease derives its name live among the wool, and prevent sheep from thriving from the severity with which they bite.

Cure.—Flour of sulphur, mixed up with butter, lard, or other unctuous substances, and rubbed in with the hand, have been found least hurtful to the quality of the wool. When, however, maggots are formed, they should be carefully scraped from the wound, to which turpentine and brandy mixed together may be applied. White-lead, scraped among the wool in small quantities, will also be found useful. Mr Preist, an intelligent chemist in Norwich, has prepared a cheap liquid that not only cures where the fly has already struck, but also prevents its future attacks.

The Tick is a small brownish and flat insect infesting sheep, and which, if not speedily destroyed, materially injures both the flesh and wool into which it insinuates itself.

Cure.—In order to remove these noxious vermin, it has been recommended to separate the wool, and to wash the diseased spots two or three times, or oftener if necessary, with a liquid preparation, consisting of one ounce of cream of tartar and a quarter of a pound of bay-salt (both finely powdered and sifted), and one ounce of corrosive-sublimate, mixed together in two quarts of soft water; or four pounds of soft soap, and two pounds of arsenic, may be steeped in thirty gallons of water, and the animals immersed in the infusion, their heads being carefully kept above water, and the sheep being sheltered from rain for one or two days. The wool must be closely pressed, and the liquor that runs off be caught in a tub or other vessel for future use. Of this application it is sufficient to state, that it is approved of and used by those eminent agriculturists, Lord Somerville and T. W. Coke, Esq. of Holkham-Hall, in the county of Norfolk. The proportion above specified is sufficient to bathe forty lambs. The preparation by Mr Preist (mentioned above) may also be beneficial in this disease.

The Rubbers, or Rubs, is a species of itch, which renders sheep extremely restless, and in consequence of which they rub themselves to death, being completely, but gradually, exhausted from not being able to feed. Their skins are perfectly clean, and, when dead, their flesh becomes of a greenish hue without possessing any bad taste.

Cure.—No effectual remedy has been hitherto discovered for this disease, though it is probable that relief might be obtained by washing the diseased sheep with strong soapsuds or ley, or by recurring to the remedies employed for the scab.

Scab.—This disease is likewise known by the name of *shab* or *ray*, and is attended with an intense itching, and cutaneous scabby eruptions, occasioned by the impure state of the blood. It prevails chiefly in wet situations, and during rainy seasons, and, as the scab is infectious, the diseased animal should in every case be removed from the rest of the flock.

Cure.—The scabbed sheep should be washed with a strong decoction of tobacco in brine (in the proportion of one pound to two gallons), to which a little oil of turpentine has been added; or, in inveterate cases, with a lather of black soap, lime-water, or sublimate-water, and oil of turpentine, sulphur, and bay-salt, or Glauber's salts, being administered internally.

Mr Hogg states (in his Shepherd's Guide, p. 96), the most effectual cure is that which can now be got in almost every apothecary's shop, known by the name of *sheep-ointment.* It is a strong mercurial composition, and the safest way is for the apothecary to put it up in small balls, one of which he may deem sufficient and safe to be rubbed on a sheep at once. Let the shepherd then take one of these balls at a time, and mix it with three gills of train-oil, and, if the animal be thoroughly infected, put the whole of this upon it, by shedding the wool and rubbing the ointment into the infected skin. Let it always be done in dry weather, and it is a safe and certain remedy, though perhaps the scab may again appear on the offspring of this flock.—*Complete Grazier.*

Pelt-Rot.—This malady is the consequence of the animal's lying on wet commons in a starving condition, its wretched fleece always soaked with water, which, from low-spirited and sluggish poverty, it is unable to shake or dry. Sheep, in the last stage of this misery, are fit for nothing but to have their throats cut, and their carcasses thrown on the dunghill. When taken in time, drive them to a good straw-yard, pull off the ragged wool, and give them an artificial coat, well rubbed in, of tar, turpentine, and grease. Give them the best and heartiest keep, an attentive regard to the regular distribution of which, especially in winter, would effectually prevent this malady.—*Lawrence on Live-Stock.*

The Hunger-Rot.—This disease, as its name denotes, is generally occasioned by poor living, especially from a scanty supply of winter-fodder. It may easily be known from the leanness of the sheep. An immediate change of keep is the proper cure.—*Complete Grazier.*

Foot-Rot.—Its general cause is the wetness and poachiness of the soil, with the common exceptions of salt marshes, where the sheep seldom have the foot-rot.

Dr Wilkinson of Enfield-Chace, whose authority, from practice, stands very high, considers moisture as the predisposing cause, which gradually operates upon the whole flock, and then it is quite in order for the lookers-on to suppose that it is contagious, and that they catch it one from another. *Prevent,* on suspected grounds, by constant examination, and rubbing in well between the claws, oil of turpentine and common brandy, well mixed in a bottle. The disease confirmed, cleanse the foot from dirt and the discharge, and pare away the decayed and infected parts, using the milder caustics first. It may be necessary to apply pledgets, and to bind up the foot, keeping the sheep in dry places.—*Lawrence.*

Mr George Culley, an eminent grazier in the county of Northumberland (from whom I have already quoted), recommends the following cure:—Mix four ounces of the best honey, two ounces of pulverized burnt alum, and half a pound of powdered Armenian bole, in such a quantity of train or fish oil as will make the various ingredients of the consistence of salve. The honey should be first dissolved, and the bole carefully stirred in, and then the alum and oil are to be added. The celebrated Mr Bakewell gives the following prescription:—Reduce three ounces of verdigris, four ounces of alum, a similar quantity of vitriol, one ounce and a half of white mercury, and one ounce of white copperas, respectively, into fine powder, and gradually dissolve the whole in one quart of white-wine vinegar. To these I shall add another, taken from Mr Hogg's "Shepherd's Guide:"—Let the sore foot be well washed with soap and urine, and then bathed with turpentine, and afterwards rubbed all over with tar, and bound up with flannel.

Blood-Rot, or Inflammation of the Liver.—In this disease the liver is bloated and inflamed, of a dark hue, but covered with a white film, the substance brittle, and full of white specks, like seeds or knots. It is observed by a Lincolnshire grazier, that "equally various with the conjectures respecting the origin of this destructive malady are the preventives and remedies recommended, among which are parsley, sweet hay, and other dry keep. Mr Lasteyrie states, that the German sheep-farmers protect their flocks from this contagion by inoculation, which is performed by making an incision in the inner face of the thigh, from which the wool is stripped, about four fingers distant from the anus. The incision must penetrate the skin, but care should be taken not to wound any muscle. A pustule of an infected animal is next squeezed with the fingers, and, after taking away the virus on the point of a lancet, it is transferred to the wound of the sheep which is intended to be inoculated, which will contract the disorder, the symptoms of which are very mild, and the recovery from which is both speedy and certain.—*Complete Grazier.*

Braxey, or Sickness.—This disorder is divided into three, viz., the dry, the costive, and the watery braxey. It appears to be inflammation in the bowels, either from taking in with the food, rime, hoar-frost, or from other similar causes; or the *blood*, from a change of poor to rich keep. The costive braxey is merely the cholic from obstructed intestines. The watery braxey is supposed to be the red water, as it is attended with a suppression of urine; the safest and shortest course to relieve which is to puncture the bladder without wounding the guts, and so draw off the urine, covering and healing the wound.—*Lawrence.*

Gid, Water in the Head, Staggers, or Sturdy, &c.—These are various terms for the dropsy of the brain. Respecting the cause of this disease there is but one opinion entertained among shepherds, which is, that it is occasioned by a chilliness in the back of the animal on account of its being exposed to the cold blasts of winter.

Symptoms.—These are so well known as to need no description. The sheep appears stupid, holding the head aside, sometimes turning it round.

Cure.—The radical operation is to trepan the skull, and extract the bladder, containing, according to Mascal, worms which are white like oat groats. Mr Hogg has cured many sheep of this disease by putting a stocking-wire up their nostril, by which the sack or bladder was perforated.

CHAPTER III.

SECTION I.

A SUMMARY OF THE DUTIES, GENERAL AND PARTICULAR, OF A LAND-STEWARD.

To form an accomplished Land-Steward, it is requisite that theory and practice go hand in hand. By consulting books we profit by the experience of other men, and perhaps gain in one year that knowledge which it might have taken the laborious practice of many to acquire. The library of the lord ought to be a resource to the steward for the most approved and useful books in every department of agriculture and economical science.

In order to understand the true grounds of tillage, and of the drill system, let the steward first of all have recourse to the great original works of Tull and Miller, the Tours of Mr Marshal, the Surveys and Communications of the Board of Agriculture, the works of Arthur Young, &c.

Respecting the proper management of soils, crops, and live-stock, all the works of the justly-celebrated and very experienced authors from whom the preceding pages have been extracted will form an inestimable mass of useful information to the steward, or to any one who has money to purchase and time to peruse them.

As to law, it is convenient that the steward be not ignorant of the common branches of it which relate to landlord and tenant, to parish-business, the poor, and the highways, commons, forests, &c.

On every branch of science necessary to his profession let the steward consult the newest and best authors.

The first Acts of Stewardship.—Great stress has been laid, by the old writers, on the necessity of the steward undertaking no more business than he can faithfully and duly execute; and he is by them very properly reminded, that his business has nothing in it of the nature of a sinecure, or of an occupation which can be sufficiently attended to *by the bye*.

On his first entry into office, let the steward make a general survey of the estates and property of every description committed to his charge, forming an inventory, and opening a set of books upon a plan previously and deliberately chosen. Let nothing of importance be committed to the uncertain custody of the memory, or of loose and straggling papers.

A very strict scrutiny is at the commencement, and indeed ever afterwards, necessary, into the character and conduct of inferior servants and labourers, because with improper instruments of this kind it is totally impossible for a steward faithfully to discharge his duty to his lord, or to render justice to his own character. Every estate should be accurately surveyed, and correctly described in a map, of which the tenant also should have one.

It is the duty of the steward to check all irregularities in the bud; to have in his possession duplicates of all leases, covenants, deeds, &c.; to inspect all repairs, that they be duly and substantially performed, fencing regularly kept up, ditches cast and scoured, water-courses free, and all common rights fairly enjoyed according to covenant.

To observe that the cutting of underwood be at the regular customary or covenanted periods; that the lopping of pollards be fair, and no damage done in any wise to the lord's timber or woods. To discourage poaching and destruction of the game, rather by rational and moderate means than either by the threat or exertion of the excessive rigour of the law.

To caution the tenants that they suffer not the land to be overrun and rooted up by moles, nor the commons and woodlands by swine unringed. To observe that all materials produced by the estate, in any respect fit for manure or other useful purpose, be disposed of and used among the tenants, and by no means alienated from the estate.

It is one of the first duties of a steward to give notice to his lord of any and every circumstance materially affecting his estate either immediately or in prospect.

To let out an Estate on Leases of reasonable duration is, beyond all question, of equal benefit to the lord and to his tenants, since the increased worth of the estate must arise from improvements, the completion of which require the expenditure of both much time and property, and which no tenant at will can risk; and with a good tenant the landlord will have sufficient assurance that such improvement will be effected, in the consideration that the tenant can in no other possible method make so great interest of his money, or contribute in so high a degree to his own comfort and conveniency. Perhaps the *term of twenty-one years* is the best medium between *tenancy at will* and *leases on lives.*

FORM OF A RENTAL-BOOK.

It is customary in most manors for the tenants to pay their yearly rents by two equal payments, whether they be Lady-day and Michaelmas, or May-day and Martinmas. In either or both of which cases the following *forms* may be adopted, dating them according to the days of payment.

A Half-yearly Rental of the Manor of A, and Rents received by B. C. May 10, 1826, *due Michaelmas*, 1825, *viz.*

No.	Persons' Names.	Half-year's Rent.			Half-year's Land-tax.			Net Money.			Old Arrears.			When due from, when such ought to have been paid.
		£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	
1.	A. B.	69	7	3	6	10	0	62	17	3	0	0	0	
2.	C. D.	106	7	3	10	10	0	95	16	9	0	0	0	
	&c. &c.													

A complete yearly Rental of the above-mentioned Manor of A. from Lady-day, 1825, *to Lady-day*, 1826.

No		Yearly Rents.		
		£	*s.*	*d.*
1.	A. B. for the —— Farm, ...	138	14	6
2.	C. D. for the —— Farm, Dovecote, Malt-house, &c.	212	14	6
	Total amount of this Manor,	351	9	0
	Here compare Cash and Rental.			

WOOD SALE-ACCOUNT.

An Account of the Sale of Underwood, in the Wood called —— Wood, in the Manor of L., in the County of M., containing 12 *Acres, cut —— Year, the Underwood being of —— Years' Growth ; the Sale-day, May 8th,* 1826.

Number of the Lot.	Number of Acres.	Persons' Names and Places of Abode sold to.	£	s.	d.
1,	1	Sold to A. B. of —— at —— .	4	5	0
2, 3, 4, 5,	4	Sold to J. M. of —— at —— . .	15	10	0
6, 7, 8,	3	Sold to C. D. of —— at —— .	12	15	6
9, 10, 11, 12,	4	Sold to R. S. of —— at —— . .	18	5	0
	12	Total of the sale of underwood is	50	15	6

An Account of the Bodies of all and every the Timber-Trees sold out of the aforesaid —— Wood, containing in the whole 26 *Trees ; the Sale-day,* —— 1826.

Number of Trees.	Persons' Names and Places of Abode sold to.	Number of solid Feet.	Value per Foot.		Value of the several Parcels.		
			s.	d.	£	s.	d
6	Sold to C. R. of —— . .	65	1	2	3	15	10
10	Sold to D. C. of —— . .	289	1	4	19	5	4
10	Sold to W. S. of —— . .	320	1	0	16	0	0
	Total of feet and value, . . .	674			39	1	2

An Account of the Heads, or Tops, of the foregoing Timber-Trees.

Number of Heads.	Persons Names' and Places of Abode sold to.	Value of each.			Total Value of each Parcel.		
		£	s.	d.	£	s.	d.
12	Sold to R. B. of —— at . . .	0	6	0	3	12	0
8	Sold to B. C. of —— at . . .	0	6	6	2	12	0
6	Sold to D. F. of —— at . .	0	5	6	1	13	0
					7	17	0

An Abstract of the Sale of Underwood, Timber, Heads, and Bark, in —— Wood.

	£	s.	d.
Sold the Underwood to several persons, as above, at .	50	15	6
Sold the Timber to sundry persons, as above, at . .	39	1	2
Sold the Heads to sundry persons, as above, at . .	7	17	0
Sold the Bark to A. B. for	15	5	4
Total,	112	19	0

TRANSFER OF SHEEP-STOCK.

Suppose a sheep-stock to be valued thus:—

Milk ewes at 17s. each, one to the score, and one cast.

Three-year-old wethers, at 16s. 3d. each, one to the score, and one cast.

Two-year-old wethers and yeald ewes, at 13s. each, one to the score, and one cast.

Hogs, at 10s. each, one to the score, and one cast.

The shots of milk ewes and three-year-old wethers to class with the two-year-old wethers and yeald ewes, and the shots of yeald ewes and two-year-old wethers to class with the hogs, and the shots of hogs, 6s. each.

NUMBERS.

Ewes with lamb, . . .	762
Three-year-old wethers, . .	202
Two-year-old wethers and yeald ewes,	340
Hogs, . . .	467

To milk ewes, . . .	762				
Off 1 the score, . .	$38\frac{2}{20}$				
		$723\frac{18}{20}$, at 17s. each,	L.615	6	$3\frac{3}{4}$
To three-year-old wethers, .	202				
Off 1 the score, . .	$10\frac{2}{20}$				
		$191\frac{18}{20}$, at 16s. 3d. each,	155	18	$4\frac{1}{2}$
To two-year-old wethers and yeald ewes, ...	340				
Brought from 1st class, .	$38\frac{2}{20}$				
Brought from 2d do. .	$10\frac{2}{20}$				
	$388\frac{4}{20}$				
Off $\frac{1}{20}$, . . .	$19\frac{8}{20}$				
		$368\frac{16}{20}$, at 13s. each,	239	14	5
To hogs, . .	467				
Add shots of two-year-old wethers, &c. . . .	$19\frac{6}{20}$				
	$486\frac{8}{20}$				
Deduct one the score, .	$24\frac{6}{20}$				
		$462\frac{2}{20}$, at 10s. each, .	231	0	0
			L.1242	0	$1\frac{1}{4}$
Deduct $\frac{1}{21}$ to clead the score, . . .			59	2	$10\frac{1}{4}$
			L.1182	17	3
To shots of hogs, $24\frac{6}{20}$, at 6s. each, . . .			7	5	$9\frac{1}{2}$
			L.1190	3	$0\frac{1}{2}$

Note.—As in the transfer of sheep-stock from one farmer to another much must depend upon the skill, honour, and integrity of the arbiters to whom such is submitted, it might be well for every district in a country to have a few men appointed for that purpose, and these sworn to do justice in all cases.

CALENDAR OF THE WORK TO BE PERFORMED IN EVERY MONTH OF THE YEAR.

January.—The ploughing for fallows ought to be finished in this month.

Sow vetches for soiling; and if there be any ley or sward-land to plough, the sooner it is done the better, that it may get the frost and snow afterwards. Raising calves for store at this season makes them strong for the next winter.

Sheep on turnips ought to have plenty of them to make them able to bear the bad weather that may be expected.

Plant pease in the garden, tread them down and cover them with ashes, to prevent the frost from hurting them. Plant potatoes for an early crop, with dung laid upon them to hold out the frost. Compost-hills ought to be made for the next crop of turnips; and the top-dressing should be laid on clover in frosty weather. Plash hedges, scour out ditches or surface-drains, and plant quicks or fruit-trees.

February.—Continue to plough the sward-land that has not been finished, to sow pease, beans, or oats on, or any other land intended for these crops. The drills for pease may be laid open, and compost put in, ready to receive the crop. Vetches and pease may be sown with safety in the latter part of the month, and beans on warm dry soils in the fields. Continue to make compost-hills, to raise calves, and feed the sheep well. Thrash barley, pease, beans, or oats, intended for sowing.

March.—Plough the turnip-land for barley. Sow pease, beans, and vetches, in the beginning of the month, oats in the middle, and barley towards the end.

Plant pease and beans in the garden, or potatoes. If the season permits, put the sheep on the wheat, and bush-harrow and roll it; this should be done before any stem or stalk is formed, or else it will shorten the ear. About the 25th of this month is a good time to sow what is called cattle or drum-head cabbage, in drills at three feet distance; and when they are ready to divide, pull them up or hoe them three feet asunder in the rows.

April.—The sowing of all kinds of grain ought to be finished as early in this month as possible where land is dry. In gardening, plant pease, beans, and cabbages; sow turnips, carrots, onions, lettuces; hoe and rod the forward pease, &c.

Lambs that are intended for store should be castrated at four or six days old. Calves intended for store are best if castrated at a month old; but two months will do. Eat all forward corn with sheep; bush-harrow it, and roll it down.

May.—In this month all fallows ought to be completed, and such as are not intended for turnips should be sown with either rapes or vetches. Plant the winter or drum-headed cabbage for cattle or sheep; sow Swedish turnips. Potatoes ought all to be planted in the first part of this month. The drill-crops of pease and beans should now be ploughed, &c. Mares ought to be put to the horse in this month.

June.—The compost must be carted in this month. Begin to sow turnips about the 20th. The potatoes should be harrowed, hoed, &c.; the corn-crops weeded; the thistles grubbed up in the meadows and summer-pastures; the sheep washed and shorn; the lambs dipped in arsenic-water to kill the fags. The early crops of grass for hay should now be mown. Hoe the bean-crops in the fields, and eat the weeds by sheep. The drill-crops of pease, beans, &c. should now be ploughed for the last time.

July.—Finish the sowing of turnips. Sow rapes to be eaten off by sheep; hoe turnips; mow the grass-meadows for hay. Lambs that are intended for stores ought to be taken from the ewes in this month, that the ewes may get in good order for the winter; and those intended to fatten may get forward.

August.—Finish harvesting hay. Harvest all kinds of grain. Finish the mowing of weeds and all superfluous grass in the summer-eaten pastures. For cabbages that are intended for cattle, the seed should now be sown, so that they may be planted out in May. The early York and May sorts should also be sown now, so as to plant out in October.

September.—Continue the harvesting, plough clover-ley for wheat, thrash wheat for seed, &c. Clover-ley ought to be ploughed a fortnight or three weeks before sowing. Foals ought to be taken from the mares in this month; for if a mare is in foal, keeping her colt with her now is apt to make her prove abortive.

October.—This month is the most proper for sowing wheat, and therefore that business ought to be forwarded with despatch. Potatoes should now be taken up and stored for the winter. In gardening, the early York and May cabbages ought to be planted for early spring crops. Put the ram to the ewes about the 20th of this month for store-sheep or grass lambs. Sheep ought to be put to turnips before any hard frost come, that the young ones may learn to eat while the tops are in juice.

November.—You may continue to sow wheat with success till January, in dry land that has been in turnips, and especially where they have been eaten off by sheep or cattle, or on any fertile soils, but not on poor soils. Thrashing of all kinds may be carried on, and the cattle brought into the folds to ease the pastures, as they ought to have as much grass left on them as can be spared.

December.—In this month the land should be properly laid dry by open drains. This is a good time to raise calves for the store. The rams ought to be taken from the ewes in this month; for lambs that come late are seldom worth raising.

In gardening, the roots of all fruit-trees ought to be covered with long strawy dung, as a defence against the frost.

Plant fruit-trees of all kinds. It is best to dig the holes a month before the trees are put in. Plash hedges, scour out ditches, make drains, throw the water on meadows, &c. &c.

THE END.

ERRATA.

Page 5, line 23, for *Page* 12*th*, read *Page* 4*th*.

—— 11. Some Articles, with their Sums being omitted in the Working-Stock Account, read them the same in the Journal as in the Day-Book.

OLIVER & BOYD, PRINTERS.

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